Railway Age

SECOND HALF OF 1920—NO. 2 NEW YORK JULY 9, 1920—CHICAGO SIXTY-FIFTH YEAR

Published weekly by Simmons-Boardman Pub. Co., Woolworth Bldg., New York, N. Y. Subscription Price, U. S. East of Mississippi, $5.00 a year; West of Mississippi, Mexico and Canada, $6.00; foreign countries (excepting daily editions), $10.00. Entered as second-class matter, January 30, 1918, at the post office at New York, N. Y., under the act of March 3, 1879.

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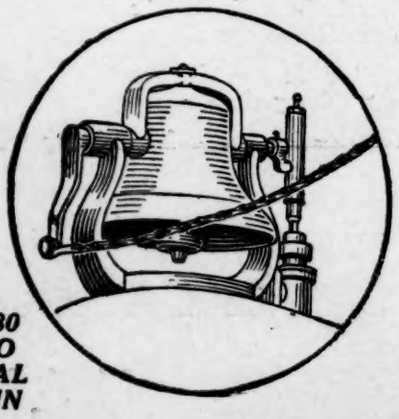

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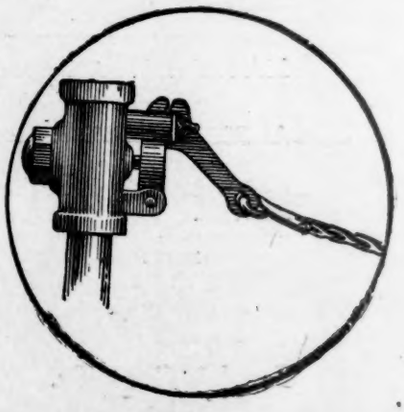

EDITORIAL
Railway Age

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The Crisis in Transportation

THE RAILROADS have made a new start. Frankly recognizing the seriousness of the transportation situation which has been created by the inadequacy of facilities, the coal mine strike, the recent railroad strikes and the failure of the railways themselves to work together as they should, their chief executive officers met in New York on July 1 to adopt new measures to deal with the conditions. It was the most important meeting of railway executives that has been held since they met in April, 1917, and created the Railroads' War Board. The plan for improving the situation which was adopted is given in detail elsewhere in this issue. Its principal features are as follows:

First, the creation of an Advisory Committee of chief executive officers, under the chairmanship of Daniel Willard, to deal with the Interstate Commerce Commission, and exercise general supervision over the handling of equipment and the movement of traffic.

Second, the creation of the office of executive manager, the principal duties of the incumbent of which will be to keep in close touch with the Interstate Commerce Commission, execute the orders of the Advisory Committee and supervise the work of the Commission on Car Service and its subsidiary committees.

Third, continuance of the Commission on Car Service with the same duties as heretofore.

Fourth, revision of the Car Service rules, and, after they have been satisfactorily revised, filing them with the Interstate Commerce Commission, thus giving them the force of law.

The plan adopted is important and constructive. It is based on a recognition of certain facts regarding the situation that stand out so prominently that it is difficult to see how any railway officer could fail to see them and realize their importance. Among these facts are, first, that the demands of commerce are and will continue to be so great that they cannot be anywhere near met during the rest of this year with existing facilities unless they are rehabilitated and operated with the utmost possible efficiency; second, that the facilities cannot be increased enough for their increase to relieve the situation much this year; third, that great increases in the efficiency of their rehabilitation and operation can be secured only by each individual railroad management doing its best, by the railway managements loyally working together and by the Interstate Commerce Commission and the shippers helping them; and, fourth, that failure to make the very best use of existing facilities available will imperil private management and the industrial and financial welfare of the country.

The principle which it is most vitally necessary that the railway managements shall frankly recognize and unwaveringly act on, is that they must carry out fully and faithfully the policies adopted and the orders issued by their Advisory Committee, their executive manager and their Commission on Car Service, absolutely regardless of individual views concerning the wisdom of these policies and orders. The railway managements themselves have created this organization voluntarily. For them to fail to do what it asks will be to stultify themselves by in effect announcing to the Interstate Commerce Commission and the public that the organization which they themselves have set up is not adapted to performing the functions for which it was created.

The chief executives of the railways could not more unanswerably indict their own intelligence and capacity than to thus announce that the organization which they themselves have created is unfit for its task. Furthermore, for them to fail to carry out its policies and orders would be to break it down without giving it opportunity to show by the results secured whether its policies and orders were wise or unwise. If individual railway managements do not like the policies adopted or the orders issued, they should carry them out first and criticize afterward. If the advisory committee does its duty it will pitilessly pillory before the railways themselves, the Interstate Commerce Commission and the public as faithless to its fellow railways and to the public any railway which fails to play the game fairly under the new rules which have been or are to be adopted.

Among the things which must be done to increase the efficiency of operation of the railways with their existing facilities are the following:

Get more cars back on the home lines.—Freight cars were scattered all over the country regardless of ownership under government control. Each railway and its shippers are entitled to the use of, roughly, the equivalent in kind and amount of the cars which the railway has provided. Since presumably each railway has provided approximately the amount and kind of equipment which it needs to handle its business, each railway will be able to render the best service and the commerce of the country as a whole will be best served when each railway has the use of, roughly, the equivalent of its own cars. Acute car shortages and congestions usually are principally due to the fact that some roads have on their rails many more and some many less than the equivalent of the cars they own.

Repair more cars.—An abnormal number of cars was in bad order when the railroads were returned to private operation, and the number of bad order cars still exceeds 7½ percent, or approximately 180,000. If great efforts are made it is possible the number of bad order cars may be reduced one-half, thereby increasing the useful supply of cars approximately 75,000. Getting cars home will tend to stimulate the repair of cars, but it is the duty of every railway management to exert itself to the utmost to repair more of the cars on its lines, whether home or foreign.

Increase the miles per car per day.—The maximum average miles per car per day ever attained was in 1916, when it was 26.9 miles. This declined to 26.1 miles in 1917, to 24.9 miles in 1918 and to 23.1 miles in 1919. Every increase of one mile per day in the average movement of all cars is roughly equivalent to an increase of 100,000 in the total available supply of cars. To improve the circulation of cars requires detailed supervision of their every

movement while in the hands of the railways themselves and the utmost co-operation by the shippers—in whose hands cars are one-third of the time—in loading and unloading them as promptly as possible.

Increase the loading of cars.—The average tons handled per loaded car increased from 22.4 tons in 1916 to 29.1 tons in 1919. It has since been declining. The loading of cars must be maintained and increased. The Interstate Commerce Commission should authorize general increases of minimum carload weights, and no effort should be spared to increase the loading of less than carload freight. A small increase in the average load per car would contribute greatly to relieving the car shortage.

Repair and modernize more locomotives.—The efficient handling of cars depends upon the available supply and condition of locomotives. No effort should be spared to improve the condition of power. The effectiveness of many old locomotives would be greatly increased by equipping them with devices of recent development.

The railways, the industries and the financial institutions of the country are in the midst of a crisis. Nothing would contribute so much toward enabling the country safely to pass this crisis as an immediate and substantial increase in the efficiency with which existing railway facilities are being rehabilitated and operated. If all who can help will do their duty to themselves and the country the crisis will be safely passed.

How it Is Done in the Postal Service

All over the country railway employees who belong to or are under the influence of the Plumb Plan League are engaged in attacking, through the press and orally to persons they meet, the management of the railways under private control. They are also charging that the officers did everything they could under government control to discredit it. The purpose of this propaganda on the part of the employees is to bring about the adoption of the Plumb plan, or at least government management. Many railway employees have been led to believe that they would be better off under government ownership. An order recently issued by Postmaster Burleson to the employees of the postal department indicates that under government ownership the railway employees would not at least have the same opportunity to spread propaganda against the management of the roads and their superior officers that they have now. In his order Postmaster Burleson says: "The attention of the department has been called to many circulars and letters issued by persons connected with the postal service which contain erroneous statements and are not based on facts. The postal service is conducted in the interest of the public, and the public is entitled to correct information at all times regarding this branch of the government service; and the department will gladly and willingly furnish such information. Employees of the postal service, in making any statement about the postal establishment or its service, who make false or slanderous statements, will be summarily dismissed from the service. Postmasters and officers of the service will be held responsible for the enforcement of these instructions." No doubt the postmaster-general and other officers of the service would be the judges of whether statements made by an employee were "false or slanderous." If such an order should be issued by the president of a railroad to its employees he would be denounced by the employees as a tyrant. The propagandists of the Plumb Plan League would make no end of capital of it. And yet every railway employee who advocates government ownership of railways is trying to force his own head and that of all his fellows into the same noose in which the postal employees now have their heads.

Cost Accounting in Railroad Shops

The fact has been emphasized many times that because of the present low state of railroad credit it is difficult to secure the capital needed for essential additions and betterments. As one prominent railway executive has said, however, "If improvements are advantageous and hence money makers, the cheapest thing that any railroad can do is to make them. If there is some improvement that will pay 25 per cent of its cost, and money is worth 6 per cent, there is 19 per cent of velvet right there." Bankers cannot be expected to finance a proposition simply because it is desirable, or a good thing, or someone else is doing it. If, however, the necessity of a proposed improvement is clearly outlined and a possible return of 25 per cent on the investment is demonstrated, it will not be long before the necessary capital is forthcoming. To demonstrate and clearly prove the money saving that will result from installing new shop equipment and tools, accurate records of labor and material costs must be kept and a proper distribution of overhead charges made. Based on cost records of similar operations in the past, it is possible to predict with accuracy how much a locomotive part, for example, will cost when manufactured by a given method. With this prediction reduced to concrete terms a shop foreman or executive can go to his superior and back up a request for additional tools by definite figures, proving what economies will be effected. Reliable cost records must be kept in railway shops and any system that is accurate and flexible, does not go too much into detail and properly distributes the overhead charges will prove a most effective aid in backing up arguments for new tools and shop equipment.

Converting Locomotives to Modern Types

The demand for heavier locomotives in recent years has led to changes in wheel arrangement with comparatively little increase in the wheel load. Nearly a decade ago the Consolidation was abandoned as the outstanding type for freight service and the Mikado took its place. Now the Mikado is giving away to the Santa Fe and Decapod. Similarly, in passenger service the Atlantic type has been replaced by the Pacific and the Mountain type is now becoming increasingly important. But while the roads have recognized the need of heavier engines and have adopted suitable wheel arrangements for new power, they have usually been content to let the existing locomotives remain as they were originally built, thus allowing these engines to sink down into the ranks of uneconomical and obsolete equipment. This practice might be justified if these engines could all be assigned to some one-train-a-day branch lines. Where they are used on heavy traffic divisions, however, they are a distinct handicap to efficient operation. Every trip these locomotives make reduces the average train load and increases the cost per ton-mile. There is no question that railroad officers appreciate that they must overcome rising costs wherever possible. Most of them realize that they can effect economies by increasing the train load, but how many have considered the rebuilding of existing locomotives, which is perhaps the cheapest way of increasing the train load? Where it has been tried, converting locomotives to modern types has proved a conspicuous success. One road changed its principal class of heavy Consolidation locomotives to Mikados. The resulting improvement in motive power conditions was without doubt an important factor in enabling it to handle the war-time traffic satisfactorily. Another road after changing Prairie type engines to Mikados was able to increase the tonnage 62 per cent. When new locomotives are put in service the operating officers are gratified to get reports of the increased train load hauled. Perhaps even

more desirable, if not so welcome, would be a report showing the loss in tonnage through failure to convert old engines to modern types.

Problems of Under-Maintenance

For two or three years preceding our entrance into the war, alternate periods of labor shortage and business depression tended to curtail maintenance of way programs. With our entrance into the hostilities all activities were subordinated to that of winning the war, and men and materials alike were diverted from normal railway uses to military activities. Following the signing of the armistice, industrial life was so disorganized and the future policy regarding railway operation was so uncertain that the decline in the condition of the railways continued during 1919. Following the termination of government control last spring it was hoped that the situation would be remedied promptly, but the season is half gone and no recovery has yet been made. With far less than a normal supply of rail, with less than one-half the normal quota of ties on many roads, and with the wide-spread shortage of labor until recently, it is becoming increasingly evident that 1920 will be a repetition of the last three years as far as maintenance is concerned. Fortunately, the construction of tracks and structures is such that repairs can in general be postponed with relative safety for a *limited* time; but maintenance officers having responsibility for this work should point out forcibly to their managements that the deferring of maintenance can be done only at the sacrifice of the factor of safety normally provided. The deterioration of property under the action of traffic and the elements is continuous and insistent. It not only must be made up some time but the longer it continues, the less is the reserve strength in the property. With the railways unable to make many of the improvements demanded at the present time because of conditions known to all, it devolves upon the maintenance departments to adopt those precautions which will enable the properties to be operated with the maximum safety until the necessary repairs can be made.

The Right Kind of Foundation

The railroads have given very little attention to the selection and training of employees. A great number of industrial organizations, on the other hand, have given a large amount of attention during recent years to the development of strong personnel departments which specialize upon these and other features relating to the handling of their employees. This has been done not in a spirit of paternalism but as a straightforward, cold business proposition. The railroads, many of them with much larger forces than most of these industrials and with the men scattered over large areas, have more to gain by the development of such departments than most of the industrial companies and yet even those roads which have made the greatest efforts in this direction have hardly more than scratched the surface. True, it is no easy task. It is a hard job, requiring patience and perseverance but promising large returns. It requires the best brains and the biggest personalities available to head it up. It must be under the direction of men of initiative and imagination. Moreover, it cannot be developed from the bottom up; it must be started at the very top, preferably by the board of directors itself, and the work should be established as a settled matter of policy and so safeguarded that it cannot be interfered with by officials, no matter what their title, who may not be in sympathy with it. If the roads had earnestly started on this work ten or fifteen years ago, the labor problem today would be very different from what it is. Railway executives have a great responsibility for the future of their properties and no time should be lost in establishing the best practices for selecting, training, handling and promoting employees. Needless to say it will be well to look carefully outside the railroad field to see what is being done by other industries in these respects.

Measure of Engine Terminal Capacity

The capacity of a locomotive, or a car, expressed in pounds tractive effort or pounds lading is a factor to be reckoned with; so is the capacity of an engine terminal, measured in the rapidity with which locomotives can be turned, the sufficiency of current repairs and the ability of the terminal to respond to any emergency. Absence of any well-defined standard by which to gage the capacity of an engine terminal may explain in part why terminal development has not kept pace with the development of the locomotive. Without a corresponding increase in terminal capacity, each increase in the number and the size of locomotives to be handled decreases the rapidity with which these new engines can be turned, the extent of current repairs and the ability of the terminal to respond to the unexpected call for more power. The capacity of an engine terminal has just as definite limitations and possibilities as any other operating factor in the make-up of the railroad. It has not merely a routine duty to perform for which the stereotyped equipment comprising a dingy roundhouse, a meagre machine shop and old locomotive boiler, scant turntable length and inadequate trackage will suffice. The purchase of a new locomotive adds available power not always in proportion to its maximum tractive effort, but invariably in proportion to the ability of the terminals to maintain this locomotive in active service. The size of the roundhouse, length of turntable, character of shop and boiler equipment, and capacity of coal and ash handling facilities are factors in the formula for terminal capacity. An improvement in any of these factors will have the same effect on the operating capacity of the railroad as an increase in any of the factors in the formula for the average tractive effort of the locomotives in service. Engine terminals have definite capacity standards which should be recognized and every terminal must measure up to the capacity of the motive power in service if the full potentialities of this power are to be realized.

Organizing the Service of Supply

Good organization is fundamental to the attainment of satisfactory results in railroad operation and one of the broadest and safest statements embodied in any of the reports recently submitted at the Atlantic City conventions was the assertion that "the officers in charge should be selected for their fitness for the organization instead of modifying the organization to fit the individual." It is organized effort that has made the service of supply what it is today, an organization capable of assuming the responsibility on any railroad for the maintenance of the necessary stocks of materials and supplies involving the investment of approximately 35 per cent of the gross earnings, and the custody of this investment. It is proper that the question of organization should be considered in advance of other matters pertaining to this section and it is likely that the work inaugurated by the general committee will be continued along the lines initiated by this committee, although the plan which recognizes an inseparable connection between the purchasing and stores department, and proposes that both these branches of the service be under the control of a single executive officer, may never be adopted by certain railroads for good and sufficient

reasons. The objections to this plan in a communication appearing elsewhere in this issue can hardly be considered as affecting in a broad way the recommendation in favor of a strongly defined organization for the service of supply. The world's work is predicated to a certain degree on the integrity of any organization and it is not likely that independent operation of the purchasing and stores department would itself safeguard the property against unscrupulous conduct of the officials in charge of the purchase and distribution of supplies. In this connection the methods pursued by the general committee in arriving at a decision in favor of a unit organization for purchases and stores are commendable. It was found by careful analysis and investigation that certain railroads in the country were procuring better results with a small investment of money than other railroads, and it is understood that the plan embodied in the report submitted at Atlantic City is patterned so far as possible after the existing organization on those railroads on which the best results were observed. While the federal regime afforded a better opportunity than may exist today for the conduct of similar comparative studies, the effort should be made to continue such investigations and revert to the same logical process of reasoning in arriving at any important decision affecting future railroad organization.

The Hocking Valley

IN VIEW of the fact that from 80 to 85 per cent of the revenue freight tonnage of the Hocking Valley consists of bituminous coal, it was to have been expected that the handicaps attendant upon the coal industry during 1919 should be clearly reflected in the earnings of the road for the period in question. Because of the labor difficulties in the coal industry, the let down in orders following the armistice and the congestion on the railroads, the bituminous coal traffic fell off nearly one-fifth, or 2,100,000 tons as compared with 1918. Other products of mines showed a decrease of 500,000 tons. The result was that the freight revenue of $9,704,000 for 1919 represented a decrease of $1,640,000, or 14.5 per cent, from 1918. The total operating revenue was $11,655,000—a decrease of $1,501,000. Federal operating expenses totaled $9,693,000—a decrease of $756,000, and the net operating revenue shown on the Federal accounts for 1919, namely $1,962,000, compared with a similar total in 1918 of $2,707,000. Railway operating income in 1919 was $1,344,000, to which was added other income bringing the total to $1,598,000, as compared with $2,592,000 in 1918. The standard return paid by the government to the Hocking Valley was $2,637,000, so that the operations of the road in 1919 resulted in a loss to the government of $1,039,000 as compared with a loss in 1918 of $45,000.

The Hocking Valley is owned through majority stock ownership by the Chesapeake & Ohio. It operates 350 miles of line, of which it owns 321, leases 21 and operates 8 under joint trackage arrangements. Its lines extend from the coal fields adjacent to Point Pleasant, New Straitsville, Logan, etc., in the southern part of Ohio, through Columbus north to Toledo. The road has no direct connection with the Chesapeake & Ohio but secures traffic from the latter over the Chesapeake & Ohio Northern between Limeville, Ky., to Waverly, and thence over the Norfolk & Western between Waverly and Valley Crossing where the line of the Hocking Valley is reached just south of Columbus. The importance of the connection in question is emphasized in part by the observation that nearly 60 per cent of the traffic of the Hocking Valley is received from connections.

The Hocking Valley is mostly single track. There are, however, stretches of double track totaling 65 miles; this including seven miles added during 1919 by projects now under way. The Association of Railway Executives has recommended to the Interstate Commerce Commission a loan of $1,371,305 for the Hocking Valley for additional main tracks, yard tracks, sidings and shops.

In view of the peculiarity of operation on the Hocking Valley, whereby it has a predominance of coal traffic, it is natural that the movement of traffic should be from the coal fields on its own lines and from its connections, north to Toledo. This is borne out by the fact that the average number of loaded cars in northbound trains in 1919 was 55.3 and of empty cars only 2.4. In southbound trains the average number of loaded cars was only 12.8, but of empty cars 46.0. The road has been noted for its ability to secure heavy loading of freight trains. Despite the great falling off in freight traffic in 1919 it was able to continue its efforts along this line and to increase its average revenue train load from 1,267 tons in 1918 to 1,465 tons in 1919. The importance that the officers of the road give this matter is brought out also by the details of operation worked out in connection with the double tracking. The plan is to use the northbound track for tonnage trains only but to run both the northbound and southbound passenger trains, of which, as it happens, the road only has a few, on the southbound track, so as not to tie up the northbound tonnage trains. The plans naturally call for plenty of siding space to use this method of operation.

The corporate income account of the Hocking Valley for 1919 shows a net income of $1,030,000. This is a reduction from the net income of 1918, namely $1,360,000. The difference between the two years was brought about principally by an increase of $93,800 in taxes, a reduction of $42,000 in "other income" and an increase of $189,000 in interest charges. During the year the company paid off $180,000 on equipment trusts and $5,000,000 six per cent notes which matured November 1, 1918, but which were extended to March 1, 1919. It issued, however, $7,500,000 five per cent notes due March 1, 1924, and for security for this issue pledged $9,600,000 new general mortgage bonds maturing in 1949. The total issue of the latter was $9,783,000, of which $183,000 has been kept in the treasury. This new financing was pursuant to an arrangement made with the director general of railroads in the early part of 1919.

The following table shows the results of operation of the Hocking Valley in 1919 and 1918 under federal operation. The figures are not combined with the corporate figures:

	1919	1918
Mileage operated	350	350
Freight revenue	$9,703,937	$11,343,613
Passenger revenue	1,228,282	1,038,843
Total operating revenue	11,654,517	13,155,861
Maintenance of way and structures	1,329,868	1,490,446
Maintenance of equipment	3,935,248	3,718,010
Traffic expenses	72,203	83,422
Transportation expenses	4,109,051	4,912,857
General expenses	248,771	248,697
Total operating expenses	9,692,605	10,448,792
Taxes	614,153	634,842
Operating income	1,343,595	2,072,112
Deficit to the government after paying rentals	1,038,910	45,143

New Books

Proceedings, American Electric Railway Association, 1917, 1918, 1919. *Five Volumes,* 6x9 *in., Illustrated. Published by the American Electric Railway Association,* 8 *West* 40*th Street, New York, N. Y.*

These five volumes contain the proceedings of the annual conventions of the A. E. R. A. and its subordinate sections held at Atlantic City, N. J., October 6, 7, 8 and 9, 1919. The individual volumes contain proceedings as follows: American Electric Railway Association, thirty-eighth annual convention, 334 pages; Engineering Association, seventeenth annual convention, 416 pages; Transportation and Traffic Association, twelfth annual convention, 238 pages; Claims Association, sixteenth annual convention, 140 pages; Accounts Association, twenty-third convention, 145 pages.

Letters to the Editor

The Usefulness of the Train Staff System

New York City.

To the Editor:

The collision at Firozabad, India, reported in the *Railway Age* of April 16, page 1211, constitutes a significant news item for operating officers in America. There is no very great mileage of staff operated lines in this country; but there have been actual hazards somewhat like that reported from India.

The electric train staff is a very safe proposition; but it behooves us to see that it is operated under the safest possible rules. To assume that it is infallible might get us into trouble. There was a case some years ago where an east-bound passenger train was waiting on a siding and one of the brakemen was sent into the station to get the staff by which the train could proceed eastward; but the operator assumed that the brakeman was a member of the crew of a westbound freight, and he gave him the staff for the block which the passenger train had just come out of; and the brakeman accepted it. The train was started out (with the wrong staff), but, fortunately, the freight was just approaching the station, at moderate speed, and no collision occurred. A prominent signal engineer remarked quite recently that conditions like those here illustrated were a source of some worry to the officers of his road, and that automatic signals ought to be installed in place of the staff, where that could be done.

There was a case some years ago where, during a storm, the block wires became crossed and two staffs for a given section were out at the same time, one from one end and the other from the other end. This source of danger is, of course, curable by suitable protection of the wires.

An examination of the rules for operating the electric train staff will show that there is always need of careful supervision. Besides the precaution suggested by incidents like those just recited it is necessary to keep prominent the rule that an operator shall not put a staff into the machine until the train which has just used it has passed entirely out of the block.

American roads have simplified the methods of operation by using staff cranes, but the requirement that the operator shall go out and put the staff on the crane well in advance of train time sometimes complicates matters. Our varied and sometimes inconsistent requirements in relation to running "under control" within yard limits also tend to confuse our rules. Is there any good way to work under the staff system, without providing a loop track, or short section of double track, at each station?

All American railroad officers are, of course, well convinced that automatic block signals are the only truly ideal system for safe train running; but there are many sections of railroad where the expenditure of the considerable sums necessary to provide automatics is out of the question, and where yet the reasonable requirements of safety demand the use of the space interval. And temporary conditions frequently arise, even on large roads, where the staff system is the best arrangement. It is to be remembered, too, that the staff system—absolute, not permissive—is the only space interval system under which everybody feels free to suspend the flagging rule. The retention of the flagging rule is the most archaic feature of our boasted modern efficiency.

R. Diefendorf.

Objections to Stores Organization Plan

Montreal, Canada.

To the Editor:

At the recent convention at Atlantic City, Section 6—Purchases and Stores, some discussion took place regarding the proper organization of the purchasing and stores departments.

It would appear that quite a number of railroads have an organization under which the general storekeeper reports to the general purchasing agent. Superficially it might be said that it is a matter of small import as to whom a departmental officer might report, but to the writer it would appear that there are no two departments of a railroad where it is more desirable to maintain separate and distinct organizations than with the purchasing and stores departments.

Much was said at the convention regarding the "inseparable connection" between these departments, but whether such connection is more real than that existing between the stores and the various consuming departments was not clearly set forth, and is certainly a debatable proposition. It is to be admitted that under federal control the connection was made more or less inseparable by the federal management, which issued an order to all railroads under its control to organize stores departments where such did not already exist, and at the same time placed that department under the jurisdiction of the general purchasing agents.

The main objection to any organic union of these departments arises from the danger which must exist owing to the facility afforded for improper action on the part of the officers concerned. There would be practically no check on purchases of material if the officer responsible for ordering and receiving was subservient to the officer who purchased the goods. This fact is further aggravated by the condition that a report recommending that all accounting for material be handled in the stores department was favorably acted upon at the convention. The general purchasing agent will then be responsible for the purchasing, receiving, distribution and accounting, including the making of his own vouchers for payment of invoices passed under his own control. Surely such a situation would demand the serious consideration of the railroad managements.

No reflection on the integrity and ability of general purchasing agents as a body is intended or implied; neither is it my wish to disparage the desire of general storekeepers to efficiently protect their employers' interests, and the fact should be noted that some recent appointments of general purchasing agents have been made from the ranks of the general storekeepers, than whom no class of men should be better qualified for such positions. But the duties of each department should be absolutely separate and distinct. To destroy the independence of either of them is to minimize dangers which should be most zealously guarded against.

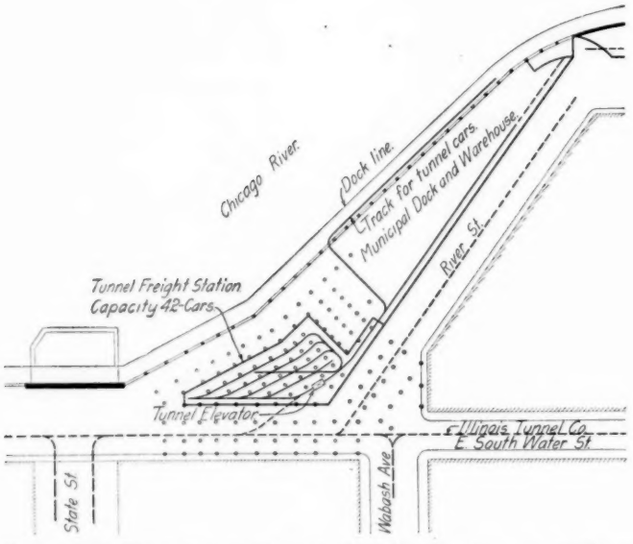
A. A. Goodchild,
General Storekeeper, Canadian Pacific.

This country could no more exist without its transportation system than the human body would without its circulatory system. Everyone knows that labor and materials have advanced out of all proportion to freight rates. The government was unable to relieve the situation without going into the public treasury for vast sums. Now that the companies are back under private ownership, the source of revenue is not open to them. The public has to pay in either case. If the money comes out of the Treasury the taxes of the people are increased accordingly. Such increase in freight rates as may be necessary would not prove burdensome, for it would provide a revenue that would come from a natural source, namely, the interests involved.—*N. Y. Commercial.*

A Plan for Expediting L. C. L. Business in Chicago

South Water Street Project Contemplates Intensive Development of Existing Utilities

THE PACKAGE FREIGHT BUSINESS in Chicago, both local and transfer, has an intimate relationship to the congestion of the streets in the heart of that city which has been brought to a sharp crisis by the enormous growth of motor car traffic. This fact is brought out most emphatically by J. R. Bibbins, supervising engineer, The Arnold Company, Chicago, in a report to the Chicago Plan Commission, on the feasibility of the so-called South Water Street project. This plan, as contemplated in the report, is also of direct interest to the railroads because it embodies provision for two universal freight stations which, it is said, would effect a considerable reduction in the teaming and trucking that now play so important a part in the street congestion. The project also contemplates the use and more intensive development of the Chicago tunnel, a 65-mile freight subway representing an investment of $15,000,000, which is now being used to but a small fraction of the traffic capacity. The possibilities of the interchange body system of motor transport are also discussed at some length, pointing out the advantages which have accrued from this system as used in other cities, as well as the obstacles to be encountered in Chicago as a consequence of the extreme congestion of the city streets in the portion of the city where this traffic would be the heaviest.



Suggested Plan for a Tunnel Freight Station at Wabash Avenue and the River

The so-called South Water Street development is proposed extension of the recently completed Michigan Avenue improvement and like the latter, is designed primarily to separate passenger vehicle traffic from the motor and team freight traffic, as a means of ameliorating the serious street congestion in the "loop" district. The report shows that, "The most alarming feature of the city's growth is that of motor vehicles, of which there are now registered about 100,000 in the city." It shows further, that there are about as many total auto movements through the "loop" entrances daily as there are cars in the city. It is an important coincidence that this motor traffic is most concentrated in the very area in which there is the largest amount of interchange on the city streets between various freight terminals which "surround the retail and office districts within an iron band." "In no other large American city," states Mr. Bibbins, "does such an acute situation exist where two entirely different classes of business are mixed so indiscriminately as in the Chicago Loop; in fact none are so handicapped for entrance and street capacity.

"The principal group of freight terminals is now and will for many years be located in a pocket at the northwest corner, Lake front, necessitating a great volume of trucking movement across the 'loop.' The next important group, in the Twelfth street district, also requires much trucking across the 'loop,' both transfer and consigned freight, unless by-pass trucking routes are developed."

The General Plan

Briefly, the general plan embodies an extension of the Michigan Avenue double deck structure westward along the south bank of the Chicago river to Lake street. For this purpose the land between the river and South Water street, now occupied by the low class buildings, would be condemned, thus affording an upper level roadway 110 ft. in width and a lower level 135 ft. wide. The object of this arrangement is to place the trucking to and from the freight houses located at Randolph street and the lake on the lower level, where it would not interfere with the cross movement of the passenger cars occupying the upper level and crossing the several bridges over the Chicago River.

The importance of this improvement in freight trucking facilities is noted in the report, which calls attention to the fact that in 1913 over one-half of the inbound l.c.l. through freight interchange between railroads was handled by teams and trucks through the down town city streets and that over one-quarter of the outbound l.c.l. freight originating at Chicago terminal freight houses was handled by teams; also, that the majority of this class of freight is handled in houses east of the Chicago river and along the lake front.

While noting the progress made in the interchange of carload freight between the railroads through the agency of the Clearing yards, the report offers scant hope of any immediate progress in the same direction with respect to the less-than-carload freight.

Furthermore, it concludes that "no very radical change in the Illinois Central-Michigan Central terminal district at the northeast corner of the 'loop' may be anticipated for many years and it seems very unlikely that all the other local freight stations and freight handling districts could or would aline themselves automatically along the river, a condition essential to the maximum use of transfer lighterage." In consequence of this conclusion, the proposal to utilize the river as a means of interchange between the railroads is eliminated.

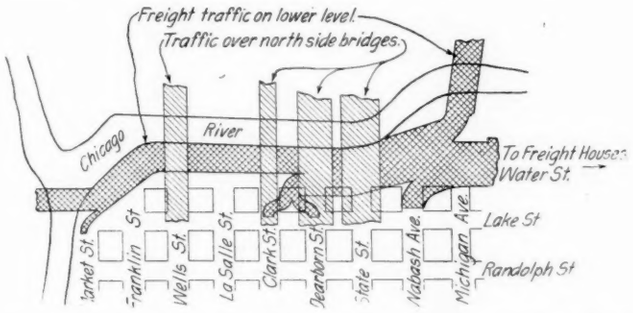
Motor Transport Facilities

The South Water street improvement and the advantage which it offers for the movement of street traffic suggests the possibility of the use of the interchangeable body motor transport for l.c.l. freight interchange and as a substitute for trap car service, as successfully instituted elsewhere. The comment of the report with regard to this is as follows:

"This contract motor transport plan has advantages, some

apparent and some real. It aims to reduce street congestion by concentrating bulk, and, with maximum loading, to reduce the number of motor trucks on the public streets required for freight service. It provides greater latitude in timing of various transport movements so that individual shipments can be handled with greater ease and less confusion at the freight houses.

"However, the fact should not be lost sight of, that any plan of motor transport, whether individual or by contract, is defective, if the downtown *public streets are used as a right-of-way* for a class of traffic which is primarily rail tonnage and should be considered as such. 'Loop' streets



How the Improvement Will Avoid Interference of Conflicting Streams of Street Traffic

are now all too few and narrow, without deliberately planning for their further use for transporting railroad tonnage."

The Chicago Freight Tunnel

It is the conclusion of the report that the Chicago freight tunnel offers the most feasible means of expediting the handling of the l.c.l. freight and an extended discussion of this tunnel property and its possibilities is embodied in the report.

"A freight transport system unique in modern terminal development exists underneath all of the principal downtown streets of Chicago on both sides of the river, which deserves special mention here. This network of tunnels is connected by elevators with all railroad stations, freight houses, important retail, wholesale and mail order houses, warehouses, coal, ash and disposal stations, and in short, with practically all the downtown industries of Chicago. The tunnel, while small in size, can handle from 70 to 95 per cent of l.c.l. freight tendered in the great majority of cases, and all freight from many of these connections. The tunnel serves four union l.c.l. stations and a large number of private commercial stations. At these union freight stations, miscellaneous freight for any number of destinations is received from a shipper on a single bill of lading, classified and routed to destination, the Tunnel Company acting as the terminal agent for the carrier road. The freight in these union stations is assembled continuously during the day in small standard cars of about five tons capacity and is hauled out in trains by electric locomotives and set off on siding at its destination, raised by elevator to the railroad's freight house floor to be loaded out in the day's inbound movement."

In accordance with this conclusion, the plan provides for two freight stations on the lower level of the South Water street improvement. One of these, with a capacity of 400 tons in an eight hour day, would be located between State street and Wabash avenue, along the general plan indicated in the drawings. Here suitable platforms would be provided for the transfer of freight from trucks to tunnel cars, with an elevator for communication with the tunnel system. The second station, with a capacity of 600 tons, is proposed for the west end of the improvement in the triangular area bounded by Lake street, Franklin street and the river. It is the idea that these two stations would serve the business houses located in the north and northwest portions of the 'loop' district, affording somewhat shorter hauls for most of the freight handled and effecting a very appreciable reduction in the street hauling. The total daily capacity of the two stations, 1,000 tons, is only about double the present tonnage, including that of the South Water street produce market, which will be removed to another locality. These stations, however, are to be regarded as distinctly 'loop' stations and all traffic originating or destined outside of the 'loop,' north or west, should, in the opinion of the report, be handled at similar stations located in these outside districts."

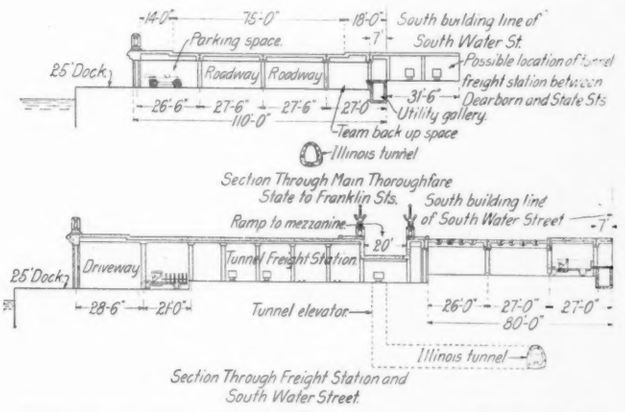
Analysis of the Present Status of the Tunnel

An extended investigation was undertaken in the course of the study to ascertain why the tunnel property was being used to such a limited portion of its actual capacity and the conclusions reached possess no little interest.

"1. The tunnel is an independent and not a railroad enterprise, although its terminal charges are now necessarily *absorbed by the carriers.* However, the competitive delivery charges by motor truck are absorbed *by the shipper,* not by the carrier. Compared with trucking, it is regarded by the freight agent as an extra charge against his department; by the railroads as a direct burden on rates. The tunnel is in fact an *extension* railroad terminal delivery service direct to and from the Chicago shipper. By nature, it must be neutral between all roads and therefore distasteful to some holding favored terminal location, until full terminal consolidation shall become effective in Chicago.

"2. The tunnel service is somewhat more expensive than trucking, although the differential is largely being removed, due to increased trucking costs.

"3. Delays in handling: The Tunnel has a much less sharp delivery peak than trucking, owing to the fact that it



Two Cross Sections Through the South Water Street Improvement

can load and transfer *continuously,* while the trucks must deliver their freight before closing hours; otherwise they will be held over to the next day. As a matter of fact, it develops that trucked freight seems to be handled much more willingly at some railroad freight houses, because of the personal assistance which the teamsters render in unloading, especially during shortages in freight handlers. In the case of tunnel cars, which must be handled by the freight house men alone, of the daily cars ready to unload, an average of *one-third or more of the cars delivered to the freight houses are held over.*

"4. Large shippers who should use the tunnel, fail to do so because of the possibility of saving over tunnel charges by using their own trucking equipment, regardless of the fact

that the additional trucking involves congestion of the streets and possibly more delay.

"5. There are some classes of bulky package freight which the tunnel cannot handle effectively or at all, amounting to from 5 or 10 per cent of the total in most cases, to 30 per cent in some.

"6. Previous to 1918, considerable inbound freight was handled by the tunnel, but during the war this was shut off largely through lack of help, so that most all of the freight movement is outbound.

"7. The duplication of checking on tunnel freight transferred to railroads appears to involve a somewhat unnecessary expense and delay. If some practicable plan could be devised to avoid the extra checking, a great improvement would be made in time and expense. *This might require the tunnel to become a quasi-railroad agency.*"

Commission on Car Service Reorganized

WASHINGTON, D. C.

PRESIDENT R. H. AISHTON of the American Railroad Association has announced a new plan of organization of the Commission on Car Service, effective on July 1, under which each of the commissioners is to have charge of a specific feature of the work and the commission as a whole is to report to the Special Committee on Car Service Matters of the Association of Railway Executives, of which Daniel Willard is chairman, through W. L. Barnes, special assistant. Mr. Barnes has been acting as assistant to the president of the American Railroad Association in charge of car service matters, but Mr. Aishton, after having spent several weeks in Washington giving personal attention to the work of the Commission on Car Service, has returned to Chicago. D. E. Spangler has been appointed a new member of the commission, succeeding C. B. Phelps. He was formerly superintendent of transportation of the Norfolk & Western and was a member of the Commission on Car Service in 1917. The plan of organization as announced in a circular issued by Mr. Aishton is as follows:

W. L. Barnes, special assistant, representing the Special Committee on Car Service Matters, Daniel Willard, chairman, will have jurisdiction in car service matters and deal with the Interstate Commerce Commission on all details relating to car service questions. He will be ex-officio a member of the Commission on Car Service and attend its conferences.

Car Service Commissioners: W. C. Kendall, A. G. Gutheim, W. J. McGarry, D. E. Spangler, and L. M. Betts.

District Organizations: M. B. Casey, Manager, Refrigerator Department, Manhattan Building, Chicago, Ill., F. E. Dewey, District Manager, New England, South Station, Boston, Mass.

The commissioners are of equal rank and will report to the Special Committee on Car Service Matters through Mr. Barnes. Each commissioner will supervise an assigned portion of the work of the commission, the necessary assistants and clerical forces to be approved by the special assistant. All orders and circulars will be issued in the name of the Commission on Car Service. Correspondence from the commission will be signed in the name of the Commission on Car Service, followed by the name of the individual commissioner assigned to handle the particular subject of the correspondence. Correspondence will invite necessary replies to be made to the Commission on Car Service.

For the present the work of the Commission on Car Service is divided and assigned to individual commissioners as follows:

W. C. Kendall, General Railroad Relations: Will handle all questions relating to car service and per diem rules and agreements, and demurrage rules. Will analyze and direct the compilation of regular and special reports and statistics other than those which relate exclusively to the work of other commissioners. Will have general charge of the work of the office manager.

A. G. Gutheim, Public Relations and Policy: Will handle relations between the Commission on Car Service and governmental departments (other than the Interstate Commerce Commission) and state, county, and municipal authorities. Will, in conjunction with the commissioner handling the particular question concerned, make a special study from time to time of such subjects as may require special attention, and handle such, as, for instance, the coal movement, the grain movement, or the movement of any other of the important and seasonal commodities.

D. E. Spangler, Open Car Distribution: Will supervise the location, relocation, and distribution of open cars, including coal, hopper, mill type and flat cars, with a view to securing the most equitable, proper and economical distribution, and to meet requirements generally.

L. M. Betts, Closed Car Distribution: Will supervise the location, relocation, and distribution of closed cars, including box, automobile, furniture, ventilated, and stock cars with a view to securing the most equitable, proper and economical distribution, and to meet requirements generally. Will also handle all questions pertaining to refrigerator cars so far as it may be necessary at Washington, the actual handling of the cars, however, to be accomplished through the Refrigerator Department at Chicago.

W. J. McGarry, Field Work: Will supervise the work of the local Committees on Car Service throughout the country, including the work of the district managers. He will also, through the medium of the chief inspector, supervise the work of the inspection force, working in individual cases, as may be necessary, with the other commissioners immediately in charge of the particular work under investigation. He will also supervise the placement, modification, cancellation and distribution of embargoes; he will supervise the receipt and filing of reports relative to accumulations and congestions, and will take the action necessary to relieve such accumulations and congestions; he will handle diversions of freight accomplished under authority of the orders of the Interstate Commerce Commission; he will have charge of the reports of bad order cars, company material under load in cars, locomotive conditions, joint utilization of facilities and the receipt and supervision of the necessary reports in connection therewith.

For the present W. C. Kendall will also act as Chairman of the commission for the purpose of preparing the docket of the commission for conferences and presiding at such conferences and at such meetings as it may be advisable for the commission as a whole to hold with representatives of the regulatory bodies, or of the carriers, or of the shipping public.

Refrigerator Department: The manager will supervise the location, relocation and distribution of refrigerator cars and will compile the proper reports and records in connection therewith, and generally secure the most equitable, proper and economical distribution possible to meet the needs of perishable freight traffic.

District Organizations: The managers in charge shall, in a general way, act as agents for the Commission on Car Service for the purpose of handling the functions of the Commission on Car Service between the railroads in the individual district to which they are assigned. Generally, relations between railroads in the individual district and other railroads will be handled by the district manager through the Commission on Car Service, and the Commission on Car Service will deal, with respect to the railroads in individual districts, through the district manager to the greatest extent possible.

Railway Executives Plan for Improving Situation

Advisory Committee Created to Deal with and Better Transportation Conditions

AT A MEETING of the Association of Railway Executives in New York on July 1, measures were adopted for the purpose of bringing about closer co-operation between the railways themselves and between them and the Interstate Commerce Commission, and increasing the efficiency of railroad operation.

The report of the Special Committee on Car Service, which was created on May 28 to study and make recommendations for the improvement of the general transportation situation, was made by its chairman, Daniel Willard. The report, with some modifications, was adopted and the following committee, to be known as the Advisory Committee, was appointed to carry out the plan adopted.

Daniel Willard, chairman, President, Baltimore & Ohio; W. H. Truesdale, President, Delaware, Lackawanna & Western; W. W. Atterbury, Vice-President, Pennsylvania Railroad; Hale Holden, President, Chicago, Burlington & Quincy; E. J. Pearson, President, New York, New Haven & Hartford; W. B. Storey, President, Atchison, Topeka & Santa Fe; B. F. Bush, President, Missouri Pacific; Howard Elliott, Chairman, Northern Pacific; C. H. Markham, President, Illinois Central.

The Advisory Committee previously in existence to deal with problems of the American Railway Association was abolished.

The Special Committee on Car Service said in its report:

"It was clearly the purpose of Congress, as expressed in the Transportation Act of 1920, that private ownership and operation of the railroads should continue to be the established policy in this country, but your committee is firmly of the belief that in the final analysis the test of private ownership which the public will apply, will be the ability of the carriers to render efficient service to the country as a whole and under all conditions. While we believe that the best results from private ownership can only be realized under conditions which permit the fullest opportunity for individual initiative and action under normal circumstances, we also believe that in order to preserve private ownership, it is incumbent upon the individual companies by voluntary action and co-operation to establish an agency authorized to deal promptly and effectively with such emergencies as contemplated in Section 402 of the Transportation Act."

The report of the Special Committee on Car Service, as adopted with certain amendments to it which were introduced at the meeting of the Association of Railway Executives, was as follows:

"The emergency which made it necessary for the Association of Railway Executives to assume direct control temporarily over matters of physical maintenance and operation having passed, your committee recommends that:

"(a) The Association of Railway Executives shall deal with questions of general policy covering public relations, legislative, corporate, financial and accounting matters, and traffic as related to rates, and questions arising out of the termination of Federal control, and the Transportation Act of 1920; and that

"(b) The American Railway Association, through its Executive and other committees, shall deal with questions of transportation, maintenance, operation and traffic as related to operation; and

"(c) The Association of Railway Executives shall have at all times executive control of all railway and railroad associations."

"3. That an Advisory Committee of nine Railroad Executives, territorially representative, be appointed by the Association of Railway Executives, to advise concerning matters relating to transportation, maintenance and operation brought to its attention by the Interstate Commerce Commission, the American Railway Association, or from any proper source. The Advisory Committee shall endeavor to establish co-operative relations with the Interstate Commerce Commission. It shall be the medium for the exchange of views and information between the Association of Railway Executives and the American Railway Association. Subordinate to the Advisory Committee there shall be Committees of Executives at leading railroad centers such as Boston, New York, Chicago, St. Louis, Atlanta, etc., to deal with questions local to the respective centers, and to secure the largest measure of co-operation between the carriers themselves, and between the carriers and the Advisory Committee.

"4. That a Car Service Commission be maintained, with headquarters in Washington.

"5. That an Executive Manager of known ability and experience, with necessary assistants and with office in Washington, be appointed by and report to the Advisory Committee. He shall supervise the operations of the Car Service Commission and deal with questions arising between the carriers and the Interstate Commerce Commission.

"6. That the American Railway Association, through its Transportation Section, take up at once a complete study and revision of the Car Service and Per Diem Rules, designing the same to deal effectively with the situation as it now exists under the Transportation Act, and to secure the return of cars to the owning roads.

"7. That when the Car Service Rules are so revised and are finally adopted by the American Railway Association, they shall be filed with Interstate Commerce Commission in the same manner as tariffs, demurrage rules, etc.

"8. The members of the Advisory Committee shall choose a chairman from their membership, who shall call the committee in conference whenever in his judgment it is necessary to do so, or upon request of three members of the committee."

A resolution was adopted setting forth that it was the sense of the Association of Railway Executives, "that to the extent it is possible, efforts shall be made in good faith by every road to send home cars to home roads wherever it can be done."

The following committee was appointed to consider the relations of the railways with the express business and Pullman company: W. B. Storey, chairman, President, Atchison, Topeka & Santa Fe; A. H. Smith, President, New York Central; J. H. Hustis, President, Boston & Maine; Howard Elliott, Chairman, Northern Pacific; Samuel Rea, President, Pennsylvania Railroad; C. H. Markham, President, Illinois Central; Carl R. Gray, President, Union Pacific, and Bird M. Robinson, President, American Short Line Railroad Association.

The Standing Committee was instructed to consider and make positive recommendations to the member-roads not later than July 23, as to the advisability of having one express company, and as to the possibility of having one contract that would be fair to all companies.

The Advisory Committee was instructed to report at the earliest possible date to the member-roads the number of cars that each railroad should provide, divided into classes of open, box, refrigerator, stock cars, etc. The resolution set forth "that this information compared with what they

have provided will show to what extent each carrier has fulfilled its duty."

The following new Articles of Organization and By-Laws of the American Railway Association were adopted:

The new articles of organization and the by-laws which become effective as of the date of the meeting include a number of changes, the outstanding features of which are as follows:

The name of the organization is again made to be the "American Railway Association" instead of "American Railroad Association" as it was during the period of federal control.

It is provided in Article 7 that the work of the association shall be conducted by a board of directors of eighteen elected members, one of whom shall be elected chairman, and one executive committee. From March 1, 1920, until the organization of the new board of directors following the annual meeting of 1920 (to be held in November), it is provided that the advisory committee of the Association of Railway Executives shall perform the duties and exercise the powers of the board of directors and the executive committee.

The by-laws call for a revision of the plan of the subordinate sections of the American Railway Association whereby there are to be, instead of the present seven sections, six organizations to be known as divisions. These are to be as follows:

Division I—Operating and transportation.
Division II—Traffic.
Division III—Engineering.
Division IV—Mechanical.
Division V—Purchases and stores.
Division VI—Freight claims.

It shall be the duty of Division I—Operating and Transportation, "to consider and report upon questions affecting operating practices, and the efficient use and interchange of equipment."

Division III—Engineering is "to consider and report upon methods affecting the location, construction and maintenance of railroads."

Division IV—Mechanical is "to consider and report upon methods of construction, maintenance and service of the rolling stock."

Conditions in the Middle West

THE transportation situation in the Central West during the past week was practically unchanged, although vigorous work on the part of the car service commissions, terminal committees and organizations of shippers has resulted in the creation of a more hopeful outlook for relief within the next eight or ten days. The principal factor in this optimistic view is the action of the Interstate Commerce Commission in ordering 27,750 empty grain cars now on Eastern lines to Western roads. The allotment of 1,800 cars to the Atchison, Topeka & Santa Fe, 1,200 to the Minneapolis, St. Paul & Sault Ste. Marie, 300 to the Wabash, 300 to the Chicago Great Western, 300 to the Chicago & North Western, and 1,200 to the Chicago, Rock Island & Pacific has met with the approval of western grain shippers. The large allotment to the Rock Island and Santa Fe is intended to help relieve the situation in the heavy grain states. It was also announced that deliveries of grain cars would be made to the Northern Pacific, the Great Northern and the Union Pacific. The number of cars soon to become available for service within the next two weeks—the time it will probably take for their proper delivery and placement—has led to the prediction that the acute grain traffic situation, which has always been more or less prevalent in Iowa and Kansas, will be substantially relieved.

The accumulation of cars in terminals resulting from the recent unauthorized strike of switchmen and switchtenders has not been greatly relieved. This is especially true in the Chicago terminal, where this accumulation affects the transportation of the whole country, inasmuch as it cannot help but interfere with the interchange movement. However, this condition has been recognized by the joint committees and strenuous efforts are now being made to dispose of the accumulated traffic.

The situation in regard to the movement of coal also remains practically unchanged, although every effort is being made by the western coal carriers to obtain cars with which to move coal from the producing to the industrial districts. Conditions at Chicago, according to Lewis T. Orr, chairman of the coal committee of the Chicago Real Estate Board, will become serious next winter unless action is taken immediately to expedite the movement of coal into this district.

According to Mr. Orr, a serious fuel shortage in Chicago may occur next winter because of the order of the Interstate Commerce Commission diverting all coal mined in the Pocahontas fields of Virginia to eastern and northwestern points, with none for Chicago. This order will mean that Chicago apartment houses and buildings, now obtaining about 80 per cent of their supply from this source, will have to depend upon Illinois and Indiana for their supply.

The whole situation in the West has been seriously affected by labor conditions. On many of the lines operating west of Chicago subordinate officers are still performing switching service and although these workers and the new men who are taking the place of the yard "vacationists" are accomplishing more work than was performed by the regular yard men, this unsettled state of organization has resulted in disturbing the ability of the roads to give the best service possible with the present equipment. It is believed that there will be a material improvement in this labor condition as soon as the Railroad Labor Board announces its award and that this should do much to end the present difficulty. While it is agreed by Western operating officers that the roads are short of equipment it is also believed that the present facilities would be sufficient to adequately handle the grain and coal movements if labor conditions were more settled.

The conditions in the West and Central West are in general indicated by the following table, which shows the number of cars loaded on several representative lines and the number of revenue cars received from connections for line movement.

WEEK ENDING JUNE 26, 1920

Road	Cars loaded on line			Cars received from connections for line movement		
	1919	1920	Inc.	1919	1920	Inc.
I. C.....	22,611	24,137	1,526	14,844	18,947	4,103
U. P.	4,884	6,607	1,723	6,758	7,232	474
O. S. L.....	2,526	2,722	196	4,189	4,953	764
C., R. I. & P...	14,395	16,230	1,835	10,404	11,121	717
*C., B. & Q....	98,868	128,380	29,512	49,037	69,603	20,566
*G. N.	78,668	91,279	12,611	11,644	11,779	135

*Month of June.

These figures show that these lines are handling more traffic than they have ever handled before despite the labor disturbances, the car shortages and all of the other factors which have conspired to interfere with transportation. Practically without exception, the records prepared for the Commission on Car Service of the American Railroad Association as to the number of revenue freight cars loaded and received from connections, show that increases are being maintained over the records established for the same periods in 1919. Even in this small table of western lines increases are very apparent, the Chicago, Burlington & Quincy for instance, loading approximately 30 per cent more cars in June, 1920, than it loaded in the same month of 1919 and handling approximately 20,000 more cars received from connections during June, 1920, than it did in the same period of the previous year.

The Equipment Purchases Provided by Loan Fund

Estimates Show 224 Locomotives and 23,500 Cars to Be Ordered in Addition to Those Already Placed

IN LAST WEEK'S issue of the *Railway Age,* pages 31 and 32, there was reproduced under the title "Funds for Equipment and Other Facilities," the report of the special committee of the Association of Railway Executives making recommendations as to the use of the $300,000,000 loan fund provided in the Transportation Act. One of the most interesting features of this report, particularly insofar as it concerns equipment, is the bearing it may be expected to have on the railway supply field. With this in view this article will attempt to show insofar as possible how much business will probably be in sight if the recommendations are adopted by the Interstate Commerce Commission.

An examination of the details available leads to the conclusion that the recommendations if adopted will call for the purchase of 224 locomotives and approximately 23,500 freight cars in addition to those for which orders have already been placed so far this year.

The suggestion of the Interstate Commerce Commission, as pointed out in last week's issue, was that the Association of Railway Executives should make recommendations as to by the carrier. As to freight cars, a rule was adopted in most cases whereby the amounts allotted in the loans were to cover only 25 per cent of the cost of the cars, the financing of the remaining 75 per cent to be taken care of by the carrier. There were some exceptions in the manner of working this out, however. The Fruit Growers Express is allotted $6,750,000, which is expected to cover 50 per cent of the cost of 3,000 refrigerator cars.

Locomotives

The recommendations of the Association so far cover loans to the value of only $26,868,629 for locomotives of the total of $50,000,000 suggested as available. This amount will probably be considerably increased when further applications are passed on. Nevertheless the loans recommended call for loans for 25 different carriers and the total amount of $26,868,629, it is hoped, will cover 50 per cent of the purchase price of 599 freight and 239 switching locomotives, or a total of 838, with a total value of $53,737,358. A considerable portion of these locomotives are already on order

TABLE A—FREIGHT AND SWITCHING LOCOMOTIVES

Road	Amount recommended	Reported in *Railway Age* — Inquiry No.	Inquiry Type	Ordered No.	Ordered Type	Builder	Issue
Atchison, Topeka & Santa Fe	$2,149,450	..	....	30	Mikado	Baldwin	April 2.
		..	....	10	Santa Fe	Baldwin	April 2.
		..	....	10	Mountain	Baldwin	April 2.
Bangor & Aroostook	180,000	No inquiries or orders reported to date.					
Boston & Maine	1,245,000	..	....	20	Santa Fe	American	March 5
		40	0-6-0	..			March 26.
		10	4-6-2	..			March 26.
Central of Georgia	237,500	..	....	4	Mountain	American	April 30.
Chesapeake & Ohio	1,058,750	..	....	20	Mallet	American	April 9.
		..	....	5	Switching	American	April 9.
Chicago & Alton	134,000	No inquiries or orders reported to date.					
Chicago, Burlington & Quincy	1,472,775	..	....	5	Mikado	Baldwin	February 6.
		..	....	15	Mikado	Baldwin	May 14.
		..	....	15	Santa Fe	Baldwin	May 14.
Chicago Great Western	276,000	..	....	10	Mikado	Baldwin	February 13.
Chicago, Rock Island & Pacific	879,583	..	....	10	Mountain	American	April 30.
		..	....	10	Pacific	American	April 30.
		..	....	15	Santa Fe	American	April 30.
Erie	1,242,500	No inquiries or orders reported to date.					
Great Northern	1,375,000	..	....	45	Mikado	Baldwin	March 12.
Gulf Coast Lines	150,000	No inquiries or orders reported to date.					
Gulf, Mobile & Northern	113,700	No inquiries or orders reported to date.					
Illinois Central	2,987,500	..	....	50	Santa Fe	Lima	May 28.
		..	....	25	Pacific	American	May 28.
Long Island	218,000	No inquiries or orders reported to date.					
Minneapolis & St. Louis	487,500	..	....	15	2-8-2	American	June 25.
		..	....	5	4-6-2	American	July 9.
New York Central	4,807,012	..	....	82	0-8-0	Lima	April 9.
		..	....	65	Mikado	American	April 9.
		..	....	46	Pacific	American	April 9.
		..	....	15	Mallet	American	April 9.
New York, New Haven & Hartford	1,750,000	..	....	30	Mountain	American	April 9.
		..	....	10	0-8-0	American	April 9.
Norfolk Southern	111,000	..	....	3	0-6-0	Baldwin	January 30.
Northern Pacific	1,853,978	..	....	25	Mikado	American	May 7.
		..	....	20	Pacific	American	May 7.
		..	....	20	0-8-0	American	May 7.
		..	....	6	Mallet	American	May 7.
Philadelphia & Reading	1,033,125	..	....	25	Consolidation	Baldwin	June 4.
		..	....	5	Pacific	Company shops	June 4.
		..	....	5	Switching	Company shops	June 4.
Southern Pacific	1,168,256	..	....	25	Freight		
		..	....	21	Passenger		
		..	....	2	Electric		
		..	....	24	Switching		
Toledo, St. Louis & Western	375,000	No inquiries or orders reported to date.					
Wabash	812,500	No inquiries or orders reported to date.					
Western Maryland	750,000	No inquiries or orders reported to date.					

Pacific and passenger locomotives are shown in the table, but not included in the totals.

the expenditure of $125,000,000 for equipment, including $50,000,000 for locomotives and $75,000,000 for freight cars. It further suggested that the amount allotted for locomotives should be for freight and switching locomotives only and that only 50 per cent of the cost should be covered, the financing of the remaining 50 per cent to be taken care of with the builders. Exactly how many, it is, of course, impossible to say without a careful perusal of the detailed requests of the carriers. Nevertheless, the compilation made by the *Railway Age,* as shown in Table A of this article, would indicate that the number already ordered is in the neighborhood of 614, including 465 freight and 149 switch-

ing locomotives, leaving still to be ordered 134 freight and 90 switching locomotives: namely, a total of 224.

	Recommended.	Shown in Table A.	To be Ordered.
Freight	599	465	134
Switching	239	149	90
Total	838	614	224

Of course, it will be understood that without the detailed data at hand it is impossible to ascertain the amounts in the second and third columns of the above table with absolute accuracy. It is believed, however, that the figures shown are approximately correct and that Table A wherein they are compiled will prove of value. In this table have been entered the name of the road and the amount allotted to it value of $143,569,730. The estimate of the *Railway Age* as to the number of cars already ordered or still to be ordered as computed in Table B is that approximately 21,556 of the cars in question have already been ordered and that the remainder of 45,021—namely, 23,465—have still to be ordered. As in the case of Table A this also cannot be regarded as official, but merely as an indication from such material as is at hand to give some idea as to what is to be expected.

Table B is compiled in the same manner as Table A and shows the orders already placed, as well as inquiries that have been issued, excluding, of course, those for which orders have since been placed. An abstract of the details in Table B would show the following comparison with the to-

TABLE B—FREIGHT CARS

		Reported in *Railway Age*					
		Inquiry		Ordered			
Road	Amount recommended	No.	Type	No.	Type	Builder	Issue
Atchison, Topeka & Santa Fe	$7,850,550	...	.....	500	Gondola	Am. Car & Fdy	March 26
		...	.....	1,500	Refrig.	Am. Car & Fdy	March 26
Central of Georgia	577,500	500	Box	...	.....	.....	July 9
		300	Gondola	...	.....	.....	July 9
Chesapeake & Ohio	1,658,750	...	.....	500	Coal	Pressed Steel	June 4
		...	.....	500	Coal	Std. Steel	June 4
Chicago, Burlington & Quincy	2,973,750	...	.....	500	Stock	Western Steel	May 14
		500	Box	Inquiry later withdrawn...		.....	March 26
		500	Gondola	Inquiry later withdrawn...		.....	April 2
Chicago, Indianapolis & Louisville	300,000	No inquiries or orders reported to date.					
Chicago, Milwaukee & St. Paul	3,150,000	No inquiries or orders reported to date.					
Chicago, Rock Island & Pacific	509,667	...	.....	500	Gondola	Bettendorf	April 9
		...	.....	2,000	Box	Inquiries later withdrawn	February 27
		...	.....	500	Stock		February 27
		...	.....	500	Gen'l Ser.		February 27
		...	.....	200	Flat		February 27
Erie	250,000	...	.....	967	Hopper bodies	Std. Steel	February 20
Fruit Growers Express	6,750,000	1,000-2,000	Refrig.	...	.....	.....	April 30
Great Northern	637,500	...	.....	500	Ore	Has. & Barker	February 20
		...	.....	500	Ore	Am. Car & Fdy	February 20
Gulf Coast Lines	667,063	No inquiries or orders reported to date.					
Illinois Central	1,524,250	1,000	Gondola	...	.....	.....	February 20
		1,000	Refrig.	...	.....	.....	May 14
		200	Flat	...	.....	.....	May 14
		300	Stock	...	.....	.....	June 16
Minneapolis & St. Louis	1,240,000	No inquiries or orders reported to date.					
Missouri, Kansas & Texas	300,923	...	.....	300	Tank	Am. Car & Fdy	January 2
		...	.....	150	Tie	Mt. Vernon	April 16
Northern Pacific	1,746,022	100	Caboose	...	.....	.....	April 2
		...	.....	300	Ballast	Am. Car & Fdy	April 23
New York Central	11,192,988	...	.....	1,000	Hopper bodies	Std. Steel	January 23
		...	.....	3,500	Hopper	Std. Steel	April 9
		...	.....	1,750	Hopper	Am. Car & Fdy	April 9
		...	.....	1,750	Box	Am. Car & Fdy	April 9
		...	.....	500	Hopper	Pressed Steel	April 9
		...	.....	500	Box	Has. & Barker	April 9
		...	.....	500	Stock	Has. & Barker	April 23
		...	.....	494	Stock	Merchants Des.	April 23
		...	.....	30	Milk	Merchants Des.	April 23
Southern Pacific	6,331,774	...	.....	2,000	Box	Co. Shops	April 9
		...	.....	1,000	Flat	Co. Shops	April 9
		...	.....	1,000	Stock	Co. Shops	April 9
		...	.....	65	Caboose	Co. Shops	April 9
		...	.....	250	Ballast	Mt. Vernon	May 21
		...	.....	500	Auto	Std. Steel	May 21
Western Pacific	1,000,000	No inquiries or orders reported to date.					
Wheeling & Lake Erie	3,600,000	No inquiries or orders reported to date					

in the recommendations. In addition to that such orders as the road has placed so far this year or the inquiries it may have issued that have not yet resulted in orders have been supplied from the weekly reports in the *Railway Age*. This unfortunately does not have the status of an official compilation. It will be studied with interest, particularly, however, because of one important factor—it will point out the name of those roads which have not yet made the purchases covered by their requests and recommended allotments, such roads being: Bangor & Aroostook, $180,000; Chicago & Alton, $134,000; Erie, $1,242,500; Gulf Coast Lines $150,000; Gulf, Mobile & Northern, $113,700; Toledo, St. Louis & Western, $375,000; Wabash, $812,500; and Western Maryland, $750,000. The amounts given represent in each case, as noted above, one-half the purchase price of the locomotives toward the financing of which the loans are requested.

Freight Cars

In the case of freight cars the Association recommended loans to 19 roads for $52,260,537, which it is hoped will permit the purchase of 45,021 freight cars having a total of 45,021 cars included in the Association's recommendations:

	Recommendations.	Orders to date.
Refrigerator	7,950	1,500
Box	14,300	4,250
Coal	8,978	8,717
Gondola	6,100	1,000
Stock	2,894	2,494
Flat	1,300	1,000
Ore	1,000	1,000
Open top cars	500	....
Automobile	500	500
Tank	350	300
Caboose	289	65
Other freight train cars	860	730
	45,021	21,556

Refrigerator Cars

Table C deals only with refrigerator cars. It is quoted from an enclosure in the report supplied to show the re-

Table C—Refrigerator Cars.

Fruit Growers Express	3,000	Inquiry 1,000-2,000, April 30.
Atchison, Topeka & Santa Fe	2,500	Order 1,500, March 26.
Illinois Central	1,000	Inquiry, May 14.
Michigan Central	250	
Minneapolis & St. Louis	200	
Chicago, Burlington & Quincy	1,000	

7,950, of which only 1,500 have been ordered to date.

frigerator car situation. Of the 7,950 refrigerator cars included in the recommendations to be purchased with the proceeds of the loans, it will be noted that only three of the six items noted have been covered by orders or inquiries. The Fruit Growers Express, which is expected to purchase 3,000 cars, issued inquiries, as reported in the *Railway Age* of April 30, for 1,000 to 2,000 cars. The Atchison, Topeka & Santa Fe—2,500 cars—was reported in the *Railway Age* of March 26 as having ordered 1,500 refrigerator cars from the American Car & Foundry Company. The Illinois Central, down for 1,000 cars, was noted in the *Railway Age* of May 14 as having issued inquiries for 1,000 of these cars.

Development of Locomotive Feed Water Heating*

Limitations and Possibilities Outlined with Particular Reference to the Open Type Heater

By Thomas C. McBride

THE USE OF FEEDWATER HEATERS on locomotives dates back to the beginning of the locomotive itself. There are records of the application of an "open" or "injection" type heater to a locomotive in England in 1827, and an English patent of 1828 describes a tubular heater for the same purpose. Ross Winans of Baltimore applied tubular heaters to two types of Baltimore & Ohio railroad locomotives in 1836. It is worthy of note that the desirability of the feed-water heater for the locomotive was recognized at these early dates, although it must be appreciated that the advantages possible at that time were proportionately greater than at the present time because of the low-steam pressure then in use.

Every conceivable type of heater and all possible sources of heat, even the hot ashes, seem to have been proposed or tried, and in view of the amount of study that has been given to the subject it seems rather remarkable that locomotive feedwater heating is not now in more general use. Possibly the reason lies in the fact that it is only in comparatively recent years that the essentials of heater performance and pump operation have been understood. Furthermore, the small size of the locomotives formerly in general use limited the saving per locomotive, and the general adoption of the injector, because of its simplicity and convenience, rendered feedwater heating impossible, for injectors heat the water which they use to such an extent by live steam that there is little or no opportunity for further heating.

Practically all of the development work to date that has been at all successful has considered only the surface type. There are a great many heaters of this type in service in Europe, but there are objections to it for locomotive use. It is a complex and delicate structure; it also wastes the water condensed from the exhaust steam with its heat or raises complications as to saving it, and it requires enough exhaust steam to heat all of the feedwater. On the other hand, the open or injection type of heater necessarily recovers both the water condensed from the exhaust steam and its heat so that both are returned direct to the boiler with the water taken from the tender. Less water is therefore taken from the tender and less exhaust steam is required for the heating.

The McBride Feedwater Heater

The adoption of an open heater for the locomotive may seem a radical step, but the author has devised an open type of feedwater heater which is being manufactured by The Worthington Pump and Machinery Corporation and is fully described in the *Railway Age* of Sept. 5, 1919, in which no new elements are used. The heater itself is of a general type that has been in use in marine service for at least twenty years. The open heater with the oil separator to remove the oil from the exhaust steam before it enters the heater because of its merits has been almost universally adopted for stationary plants. One of these heater and pump units was thoroughly tested out on the locomotive test plant of the Pennsylvania Railroad at Altoona, Pa., in 1917, and has been in operation on road service since October, 1918. Three more units have been in operation for approximately a year on pooled locomotives and have given no trouble other than the usual pump maintenance. Nothing has developed indicating that the open heater as a type is not well adapted to the locomotive and the coal and water savings have been so marked as to be evident to the crew.

Advantages of Locomotive Feedwater Heating

It is not possible to make an exact general statement of the advantages to be obtained from locomotive feedwater heating, because much depends on the particular locomotive to which the heater is to be attached, the capacity at which it is worked, the temperature of the water in the tender, and the basis on which the advantages obtained are stated. We are liable to base our notions as to the advantages of feedwater heating on the results obtained in stationary practice where the coal saving is very properly considered as equivalent to the reduction in the amount of heat necessary to evaporate the water because of the higher temperature at which the water is delivered to the boiler. In the case of the locomotive, however, with its very complicated relations of the different operations that are going on, and the very wide range of capacity through which the boiler is operated, there is generally a much greater coal saving than in stationary practice. Three factors enter into the final result: 1, the reduction in the amount of heat required to evaporate the water in the boiler, which might be called the *heat saving due to the feedwater heater.* 2. The reduction in the amount of heat required results in a greater reduction in the amount of coal required because of the better efficiency of the boiler at the lower rate of combustion. These two factors give the *coal saving based on water evaporated.* 3. The exhaust steam taken by the heater from the exhaust ports of the locomotive reduces slightly the back pressure in the locomotive and should show some advantage. All three factors combined will give the *coal saving based on indicated horsepower.*

Coal Saving Based on Water Evaporated

In order to obtain the coal saving based on water evaporated it is necessary to consider particular locomotives, since this factor involves the change in the efficiency of the boiler with varying boiler capacity. For this purpose the curves of Fig. 1 have been prepared. The curves on the left marked A are on the basis of 10 per cent heat saving; those on the right marked B on the basis of 12 per cent heat saving. The upper solid curves marked "injector" are test plant results of a con-

*From a paper presented at the spring meeting, St. Louis, Mo., May, 1920, of the American Society of Mechanical Engineers.

solidation, atlantic, and mikado type locomotive respectively and show the total amount of water evaporated per hour against dry coal fired. The dotted curves marked "heater" for each of these three locomotives show the amount of water that would have been evaporated by the same amount of coal with a feedwater heater reducing by 10 per cent and 12 per cent respectively the amount of heat required to evaporate the water and superheat the steam. The vertical distances between the solid and dotted curves represent the amount of coal saved and these quantities are shown in the lower set of curves. This lower set of curves, therefore, shows the coal saving based on water evaporated due to the feedwater heater that follows a reduction of 10 per cent and 12 per cent respectively in the amount of heat necessary to evaporate the water and superheat the steam. These curves show that the feedwater heater attached to a locomotive will effect a coal saving beginning at low capacities practically identical with the heat saving, or the coal saving which we have been accustomed to in stationary practice, but which increases at first gradually and then more rapidly as the capacity of the locomotive is increased, reaching values twice or more than twice these figures as the maximum capacity of the locomotive is

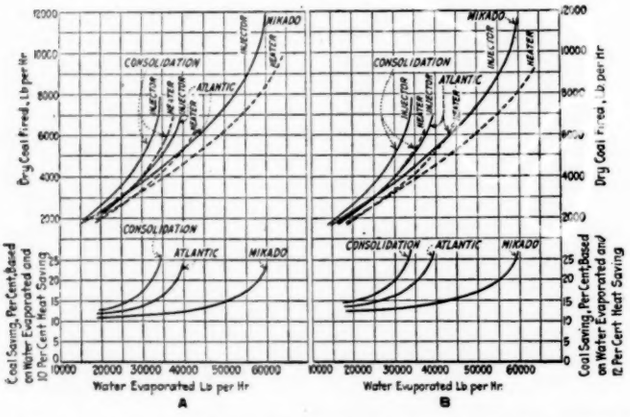


Fig. 1. Curves Showing Estimated Coal Saving with Feed Water Heater

approached. It would be difficult to credit this result were it not warranted theoretically by the second factor mentioned above, and had it not been confirmed in test plant results with a wide margin to spare. A study of the upper curves in connection with the lower curves of both figures will show that the very great coal saving possible is accompanied by an increase in steaming capacity due to the feedwater heater and that it should be possible to work the locomotive with the heater at greater steaming capacities than are possible with the injector, but how much greater would depend largely on the particular locomotive.

Coal Saving Based on Indicated Horsepower

Saturated steam locomotives should show a further gain of a few per cent from reduced back pressure. Test plant records show some reduction in this back pressure in superheated steam locomotives accompanied by a reduction in superheat and indicate that, at least until further tests are made, this factor should not be considered for superheated steam locomotives. The curves shown in Fig. 2 are based on test plant results of a mikado locomotive, comparing its operation with the injector and with the feedwater heater referred to in

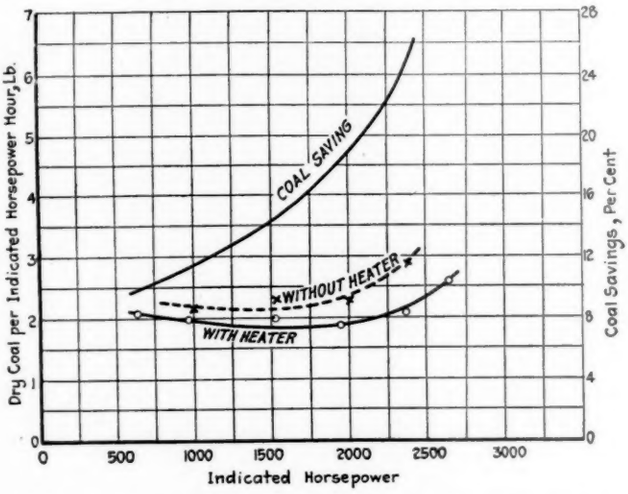


Fig. 2. Curves Showing Coal Saving Based on Test Plant Results

this paper. Table 1 shows the heat recovered by the feedwater heater and Table 2 the coal saving and increase in efficiency. They show a coal saving curve of the same general character, but slightly higher than the curve for the mikado locomotive of Fig. 1.

TABLE 1—HEAT RECOVERED BY THE FEEDWATER HEATER

Test No.	1	2	3	4
Steam to engine, lb. per min.	314.5	492.8	599.1	757.3
Steam to feed pump, lb. per min.	7.4	10.5	12.5	14.6
Steam to safety valve, lb. per min.	0.8	0.7	2.1	5.5
Exhaust steam condensed, lb. per min.	42.3	71.4	90.0	113.7
Heat in steam, B.t.u. per min. to engines	402,749	639,063	780,867	996,531
To feed pump	8,876	12,594	14,994	17,393
To safety valve	960	840	2,519	6,597
Total heat in steam	412,585	652,497	798,380	1,020,521
Heat recovered from exhaust B.t.u. per min.	50,725	85,694	108,063	136,736
Per cent of total heat	12.3	13.1	13.5	13.4

TABLE 2—COAL SAVING AND INCREASE IN EFFICIENCY WITH FEEDWATER HEATER

Test Nos.	1 and 5	2 and 6	3 and 7	4 and 8
Speed in m. p. h.	14.6	14.6	22.0	22.0
Indicated horsepower:				
Without heater	990	1549	2001	2388
With heater	965	1534	1949	2373
Coal per indicated horsepower hour, lb.:				
Without heater	2.2	2.3	2.3	2.9
With heater	2.0	2.0	1.9	2.2
Coal saving by feed heating, per cent.	9.1	13.1	17.4	24.7
Drawbar horsepower:				
Without heater	824	1289	1690	2019
With heater	783	1293	1679	2055
Thermal efficiency of locomotive, per cent:				
Without heater	7.0	6.7	6.7	5.4
With heater	7.6	8.0	8.6	7.8
Increase in efficiency with heater, per cent	8.5	19.4	28.3	44.4

Conclusions

Viewed from the standpoint of coal and water saving, the adoption of the heater becomes a question of interest on first cost, depreciation and maintenance cost against these savings. Viewed from the standpoint of increased capacity, the question becomes one as to whether the feedwater heater does not offer increased capacity at the lowest first cost, especially if, as in the case of the comparison of the consolidation locomotive with and the mikado locomotive without a heater, the adoption of the heater permits of the use of a simpler and less costly type of locomotive. The feedwater heater offers a solution of the pressing problem of these times, when so many fairly old and small locomotives have outgrown their usefulness because they are not large enough for present-day demands. The feedwater heater will not only increase the capacity of these locomotives, or what might be called their economical operating capacity, at a comparatively low cost and with little change in them, but it will also show a larger percentage of coal saving because of their full loading than would be obtained with present-day larger locomotives.

Work of the Local Committees on Car Service

An Analysis of the Results Accomplished at the Points Where Committees Have Been Active

WASHINGTON, D. C.

THE COMMISSION ON CAR SERVICE has issued a summary of the activities of the local Committees on Car Service organized at 29 of the principal terminals of the United States, who have been doing most excellent work notwithstanding the short time that has elapsed since they were established. An abstract of the report, which is dated July 1, is as follows:

"Meetings have been held with representatives of the chambers of commerce and other local trade bodies and organizations, and with the shipping public in general. In many cases representatives of the teamsters and truckers have been called into these meetings all with the view of securing a closer co-operation between all interests involved.

"Labor conditions have contributed largely to retard the efforts of the committees; however, in most cases they have been able to remove the difficulties that existed and materially reduced the accumulations of freight, and in many cases the accumulations have been entirely cleared up.

"At points where most serious accumulations and other difficulties existed, the committees have directed their efforts toward speeding up the movement through terminals and reducing the delay in loading and unloading cars by handling vigorously with all interests concerned.

"Special attention has been given at all points to the building up of solid trains for specific destinations, territories or connecting lines, and in many cases it has been found that large industries and shippers have been able to load solid trains by consolidating shipments for specific points on specific days and rotating trains between the lines interested in order to maintain a proper division of the shipments to be handled.

"Embargoed cars in large numbers have been disposed of at practically all points by trading between lines, and the diversion of cars to open routes. Reports received to date indicate that approximately 10,000 cars have been so disposed of at the terminals where these committees are operating.

"Cars held account of accumulations and inability of lines to receive and move have been diverted in large numbers under Interstate Commerce Commission Service Order No. 1, thus materially reducing accumulations on hand and releasing the equipment. Reports received to date, which do not include all of the points where committees are operating, indicate that approximately 20,000 cars have been diverted under this order through arrangement made by the committees.

"In some cases entire cargoes of freight which could not be handled at original destination export points have been diverted to other ports and, by co-operation with steamship agents, vessels furnished to handle.

"The accumulations of L.C.L. merchandise in warehouses and cars at certain points have been particularly acute. With very few exceptions this difficulty has been overcome by following up vigorously with consignees to remove freight from warehouses, and speeding up the unloading of cars by working overtime and securing voluntary forces to work on Saturday afternoons and Sundays.

"The substitution of trucks for cars in crosstown movement has been taken up at all points and worked out to the fullest extent possible, thus relieving for road movement the equipment formerly used in this service.

"The bad order situation has been particularly acute at some of the points, due to shortage of labor and material. However, at most of the points bad order cars on hand have been materially reduced by employing additional repair forces and working overtime. Notwithstanding this fact, there yet remains a great deal to be done in this direction, and this matter is receiving constant and vigorous attention on the part of the committees."

A brief statement of the principal things accomplished at the larger cities will serve to illustrate the scope of the field these committees are covering and the work they are doing, and may be of assistance in working out improvements at other points where committees have not been organized.

Atlanta—The committee at Atlanta was confronted with a strike of the yard and agency clerical forces immediately after its organization. This emergency was met by having members of the committee and other officials and employees of the roads interested go into the yards and stations and handle the work of the striking forces until they returned. The strike situation was adjusted, and all forces had returned to work on June 7.

Considerable freight had accumulated at Atlanta and outlying points due to slowing up of the movement during this period, but this has now been practically overcome, and all freight business is being handled currently with the exception of the Southern Railway movement south of Atlanta where there is slight accumulation due to lack of power caused by heavy movement of refrigerators to the peach territory.

Arrangement has been made by the committee for the Seaboard Air Line to use tracks of the Nashville, Chattanooga & St. Louis in making interchange with Atlanta joint terminals. This involves haul of 1 mile as compared with former haul of 14 miles around Belt Line. It will also eliminate one inspection of the cars so handled. It is further estimated there will be a saving of 12 engine hours per day, and a saving of approximately $70.00 per day in expense of handling.

By close inspection of the bills covering accumulation L.C.L. cars on hand for transfer, there were found 50 cars containing 20,000 to 30,000 pounds for Augusta and points beyond, with very little freight for Atlanta. These cars were sent to Augusta where they were worked into solid cars for other points and the freight for Atlanta territory consolidated into four cars and back hauled, thus eliminating the handling of these cars in the congested Atlanta terminal. One hundred seventy-five embargoed cars and 475 cars other freight were disposed of by trading between lines and diverting to open routes under I.C.C. Service Order No. 1.

Accumulation on Southern Railway at Chattanooga was handled by this committee and reduced by diverting loads to Central of Georgia and Atlanta & West Point Railroad.

Cincinnati—Baltimore & Ohio; Cleveland, Cincinnati, Chicago & St. Louis; Chesapeake & Ohio, and Pennsylvania Railroads are making up solid trains for specific points, connecting lines, and divisions. Accumulation of freight for Pennsylvania Railroad eliminated by diverting to other lines. Approximately 6,000 cars freight held under embargo, and for other causes, disposed of by trading between lines and diverting to open routes under I.C.C. Service Order No. 1. Accumulation of bad order cars reduced by forwarding to repair shops outside of Cincinnati, and to contract shops, for repairs.

Cleveland—Committee was confronted with accumulation of freight for local and switching delivery on Erie and Big Four due to these lines not placing embargoes at proper time. This has been reduced by speeding up on delivery, and trad-

ing cars wherever possible. Further accumulations prevented by applying proper embargoes, and arranging for interchange of cars outside of Cleveland switching district, and arranging for acceptance on other roads. L.C.L. merchandise situation being improved by working forces overtime and on Saturday afternoons and Sundays; and also by consolidation of L.C.L. schedules, and arranging solid cars wherever possible.

Denver—Cars loaded with automobiles and held account of consignees inability to lift bill of lading released by unloading at owner's expense. Several cars household goods on hand for which consignees could not be located, and no storage space being available, were consolidated into one car, thus releasing other cars. By speeding up the movement, an average interchange of 750 cars per day handled on an average of 3 hours and 55 minutes per car; a decrease of 1 hour and 2 minutes per car over same period last year. This resulted in saving approximately 972 car days per month on present volume of business handled.

Galveston—Accumulation of 3,700 cars freight on hand for local delivery June 1 reduced to 1,485 June 26. Two thousand seven hundred thirty-two cars of grain on hand June 1, included in above, reduced to 856 on June 25. Steamers in port to take 881 cars; room in elevators for 559 cars. This was accomplished by diverting 325 cars to Texas City to fill elevators at that point, and suspending all permits, and trading grades between consignees wherever possible. Four hundred eighty cars for Morgan Line on hand June 1, included in above, reduced to 35 cars June 26 by consolidating L. C. L. into solid cars and forwarding via all rail routes wherever possible, by unloading to ground, and by diversion of one cargo to New Orleans and arranging with steamship agent to furnish vessel to handle.

Kansas City—Accumulation on Rock Island, due to shortage of power, reduced to normal by diverting freight to Chicago, Burlington & Quincy and other lines. A number of cars on hand under load with automobiles disposed of by having shippers reconsign to other points. Accumulation of L. C. L. freight reduced to normal by working forces overtime. Bad order cars on hand reduced by forwarding to outside repair shops, and speeding up on repairs. Situation reduced to normal and all traffic moving in and out freely.

One hundred forty embargoed cars and 510 other loads disposed of by trading between lines, and diversion to open routes under I. C. C. Service Order No. 1.

New York—Reduction of 842 cars lighterage freight accomplished within period of ten days, in addition to handling new arrivals during same period, amounting to 5,209 cars. Reduction of approximately 1,000 cars in New York station freight effected by use of Jersey Shore team tracks and Brooklyn terminals; consignees agreeing to accept such delivery. Reduction in interchange traffic accomplished by use of Bay Ridge gateway, Pennsylvania Tunnel and Jersey Shore Belt Line. Transfer freight being reduced by combining cars and working forces overtime and on Sundays. One hundred embargoed cars disposed of by trading between lines and diverting to open routes. Seven hundred fifty-seven other loads disposed of by diverting from congested lines to lines in position to handle. Through co-operation of all concerned two trains of Pennsylvania Railroad freight for New England points were handled from Pennsylvania Railroad via Philadelphia & Reading at Harrisburg, and Central Railroad of New Jersey at Allentown, for movement to Jersey City, avoiding Philadelphia Terminal and congestion on Pennsylvania Railroad.

Omaha—By having inspectors in field give close attention to release of equipment and correcting conditions on ground, an increase in supply of 200 box cars was accomplished during first week of committees' activities. Arrangements made for use of portable derricks for unloading automobiles on hand in open top cars. One train of 29 cars being unloaded in an average of 10 minutes per car. Arrangements made with shippers for consolidating packing house products from South Omaha into three trains per day; two for points East of Chicago and one for Chicago and intermediate points. Trains being divided between six lines interested on consecutive days. Arrangements made for consolidation of wool shipments for Boston into solid trains or groups for delivery to the Wabash Railroad. Shipments of grain are being forwarded in solid trains daily made up in groups to various destinations so as to facilitate switching at intermediate points.

Philadelphia—Export freight reduced by unloading to ground wherever possible. Movement of freight from Philadelphia to New England points grouped into solid trains and forwarded on sailing days—being handled through New York tubes to avoid congestion. Accumulation of L. C. L. transfer freight overcome by placing proper embargoes; arranging with Philadelphia Market House to unload on Decoration Day, and the forwarding of several trains to Harrisburg Transfer for working at that point. In cases where consignees have been slow in unloading, freight has been placed in storage to release equipment. Bad order situation relieved by forwarding a number of cars to other shops in position to repair.

Pittsburgh—Accumulation on Pennsylvania Railroad, for delivery to Pittsburgh, Chartiers & Youghiogheny, disposed of by Pennsylvania Railroad taking charge of Pittsburgh, Chartiers & Youghiogheny operation. A portion of Baltimore & Ohio freight between McKees Rocks and New Castle Junction diverted over Pittsburgh & Lake Erie, permitting 50 per cent increase in train loading, and the moving of one train with 1 locomotive as compared with 4 over normal route. Emergency condition, in connection with disposition of slag and other waste material, relieved by placing embargo against delivery of shipments to roads not in position to handle, and arranging delivery of 30 cars per week to Pittsburgh & Shawmutt; 50 daily to Western Allegheny; 50 daily to Montour; 25 daily to Pittsburgh & West Virginia, and 20 cars daily to the Pittsburgh Steel Products Company.

St. Louis—All lines classifying freight in their yards and building up straight trains for interchange for lines beyond. Plan being developed for movement of oil from oil fields in solid trains so built up to avoid switching at larger gateways. Arrangements made with lines to exchange information on cars held back so movement can be made. Cars for reconsignments, and other cars held for embargoes, handled with shippers for diversion, and with committees at destination points for disposition. Through co-operation with St. Louis Chamber of Commerce special committee shippers has been appointed and meets each Monday in the office of the committee and is rendering valuable assistance in connection with elimination of trap cars, cross town service, full capacity loading, and prompt loading and unloading of cars. Situation with respect to cars set back at interchange points account of safety appliance defects analyzed, and arrangements made to clarify instructions of inspection and handling, whereby setting back approximately 800 cars per month will be avoided. Four thousand two hundred eighty-nine cars diverted from congested lines to lines in position to handle under I. C. C. Service Order No. 1.

Toledo—Arrangements made with three of the largest producers of car-load freight to group loading for specific destinations. Accumulation of L. C. L. freight overcome by working forces evenings, Saturday afternoons, and Sundays, and the closing of outbound freight houses on certain roads for three-day periods. Arrangements made for special committee of traffic representatives to handle embargoed cars. This committee has disposed of 791 embargoed cars by trading and diverting to open routes, and making special campaign with each road violating embargoes to overcome the practice. Three hundred forty cars diverted under I. C. C. Service Order No. 1.

Washington—Accumulation of freight at Potomac yards for restricted New York districts overcome by arranging with roads north to move out and store on line until movement to destinations could be made. Arrangements made for re-routing through Norfolk and Hagerstown gateways, freight normally moving through Potomac yards. Difficulty, experienced in having southern connections observe embargoes and hold orders, vigorously handled with roads at fault and arrangement made for censors to be placed at terminals south of Potomac yards to correct the situation. Accumulation of L. C. L. freight at Potomac Transfer eliminated by increasing forces, working overtime, and the diversion of 170 cars to Washington Terminal.

It is stated that conditions at Boston, San Francisco and Seattle have been practically normal, and there has been very little opportunity for these committees to report special things accomplished. However, these three committees—as well as the committees at Chicago and Detroit—have been doing excellent work, directing their efforts toward securing more prompt movement in loading and unloading of cars. Car Service Committees have recently been appointed at six additional points, viz: Columbus, Ohio; Des Moines, Iowa; Fort Worth, Texas; Grand Rapids, Michigan; Indianapolis, Indiana, and Milwaukee, Wisconsin, but the time since their organization has been too short to outline any of their activities in this report.

Priority for Railroad Orders

"PRICE AND TERMS of payment being equal railways are to have first preference in the allocation of goods where our supply is unequal to all the demands upon us."

This is a quotation from a letter to the Railway Business Association from a manufacturer who has realized the importance of putting the railways back in first class condition as soon as possible and who has adopted this policy as a part of his contribution to that work.

The letter of the manufacturer and a letter by Alba B. Johnson, president of the Railway Business Association, presenting it to manufacturers and merchants urging them also to give preference to railroad orders follow:

The Manufacturer's Letter

"We believe that a large number of manufacturers and jobbers throughout the country could profitably put in effect a policy similar to one which has just been adopted by us. For obvious reasons you are requested not to use our name, but the idea stands on the merits.

"We have given instructions that price and terms of payment being equal railways are to have first preference in the allocation of goods where our supply is unequal to all the demands upon us.

"We happen to be both manufacturers and warehousers. As warehousers we carry certain lines of material, the customers for which include both railways and others. At the present time demand upon us exceeds our stock. Non-railroad customers have represented such a proportion of purchases that following our normal custom we would be allocating practically all of our supply to them, leaving nothing for railroad customers, who on this line of goods have never bought from us very heavy tonnage.

"In a recent company conference it was made clear that the most serious problem confronting the house was car supply, both inbound and outbound. To the end that every resource within our control should be concentrated upon the rehabilitation of existing cars and locomotives and the provision of new ones, the instruction was made rigid to give preference to railway orders, even though such preference might involve disappointment to concerns which have been larger and more constant customers of ours. We have not felt that this disposition on our part ought to be extended in such a way that any advantage would be taken of it by railroads in the matter of price or of remittance terms. Hence, as stated above, the instruction to our people stands that price and terms of payment being equal they are to give preference to railroad orders until further notice. Inasmuch as our invariable terms of sale are cash, 30 days, this means that railroads prepared to place orders on 30-day cash basis at the current price will receive preference.

"We believe the Railway Business Association will act in aid of the general situation if it will suggest a similar course to its members and others."

R. B. A. Urges Dealers Give Railroad Orders Preference

President Johnson's letter follows:

"Co-operation for building up the freight car and locomotive supply is suggested in a practical form in a letter which had been received from a member of the Railway Business Association, a concern of large operations and the highest standing. The letter is published without the name of the company, since use of the name might unnecessarily involve the company in discussion with customers whose needs it is proposed to postpone temporarily in favor of railroad orders.

"Our correspondent announces that price and terms of payment being equal he will from now on until further notice give preference to railroad orders where his supply is inadequate to the total demands, even though this involves discrimination against customers who in the past have bought from him larger and more constant tonnage than have the railroads.

"It must have been long since evident to close observers that with car shortage at the root of industrial difficulties, other than labor, priorities would ultimately be essential in one form or another to enable the roads and the car and engine builders to catch up. Only one priority in the current governmental sense has thus far been resorted to—that under which coal cars are being hauled empty to the mines in order to furnish the coldest and most distant regions with their next winter's supply. It has been hoped by the Interstate Commerce Commission and by the roads that even this priority would not be necessary, and both Commission and roads are understood to view with reluctance any enlargement of the list, which they fear would precipitate an avalanche of petitions. Obviously priorities imposed for the correction of rolling stock shortage would be most appropriately directed to the provision of new rolling stock. In the meantime while the roads can only obtain the advantage of priorities in car supply through sanction from the Commission, manufacturers and merchants can within their own discretion determine which customers they will prefer in allocating a supply of material short of total demand.

"It would seem as if all concerned would concur in the conclusion that for some time to come preference not only in this matter but in every matter affecting the restoration of the roads to normal condition and service is in the public interest."

THE LEGAL DEPARTMENT of the International & Great Northern has been moved back to Houston, Tex., from Palestine.

IT IS OUR DUTY to the country to facilitate and aid in the rehabilitation of the railroads. The individual part may be small, but the aggregate is large, and the sooner each business man comes to a full realization of this fact, the better it will be for him and everybody else.—*F. M. Fuller, before meeting of the Metal Branch of the National Hardware Association.*

General Rate Advance Hearings Concluded

Increase in Passenger Fares Proposed to Help Meet Additional Advance Required by Wage Decision

WASHINGTON, D. C.

THE HEARING before the Interstate Commerce Commission on the applications of the railroads for a general increase in freight rates, which was begun on May 24, was concluded on July 6 after three days had been allowed for final arguments, five hours to the carriers and ten hours to the shippers and state commissioners. The case was submitted with a general expectation that whatever increase the commission shall decide to allow on the basis of the facts presented in this proceeding will have to be increased when the Railroad Labor Board renders its decision on the wage demands of the employees and the carriers have proposed that to assist in taking care of the further increase an advance be made in passenger fares also. In this proceeding they have confined their applications to increased freight rates.

Just before the opening of the argument Mr. Thom made a statement to the commission that, bearing in mind that a percentage increase in rates may disturb commercial relations to some extent, the carriers desire to ask the commission to hold the case open on the docket after the decision is announced, in order to enable the commission to supervise and promptly bring about such readjustment of the rates as may be necessary after a percentage increase is put into effect.

Mark W. Potter, formerly president of the Carolina, Clinchfield & Ohio, took his place as a member of the commission at the hearing on July 2, and heard the arguments.

Argument for Eastern Roads

Francis I. Gowen, general counsel of the Pennsylvania Railroad, presented the argument for the Eastern railroads. He referred to the importance of the commission treating the case as a nation-wide proposition, saying that there had been a tendency on the part of the shippers to place too much stress on conditions pertaining to only a few roads. The testimony in this case, he said, shows that adequate service rather than low rates is the desideratum of the shippers and that too low rates produce a service which in the long run is more costly to shippers than a proper level of rates. He pointed out that Congress knew when it passed the transportation act that the commission in readjusting rates at this time would not have before it all the elements of a complete valuation of the railroads and that it would have to use such information as is available. For this reason he contended that the property investment accounts should be accepted as a conservative basis of value, because, while they have been shown to be open to criticism in some respects, there is much evidence that as a whole they are very conservative.

Mr. Gowen also pointed out that during the first four months of 1920 the Eastern railroads have sustained a deficit of $63,000,000 as compared with a net operating income of $10,000,000 in the corresponding months of 1919. Therefore, he said, it was not necessary to answer the argument that the amount of increase which the railroads have asked should be reduced because of the prospect of a large increase in traffic in 1920 as compared with 1919, because the first four months of the year have reflected not only the increased traffic but also the increased expenses.

Argument for Southern Carriers

In opening the argument for the Southern carriers, R. V. Fletcher, general solicitor of the Illinois Central, said that the commission would have a true picture of the situation which confronted the Southern carriers at the end of federal control, if it would bear in mind that, comparing 1916 with 1919, the operating revenues in that period had increased 58.87 per cent, while operating expenses increased 110.88 per cent; that the operating ratio had gone from 66.63 per cent in 1916 to 88.44 per cent in 1919; that net income in this period had decreased 62.88 per cent, and that the rate of return on property investment had fallen from 5.90 per cent in 1916 to 1.88 per cent in 1919.

He stated that these problems were before the commission:

1. To determine the grouping of the carriers.
2. To fix a valuation for the property in each group.
3. To determine the rate of return.
4. To adjust rates so as to yield that return.

He dismissed the subject of the grouping in a few words, saying that there was little or no controversy on the subject.

On the question of the value of the property, Mr. Fletcher insisted that the carriers do not contend that the property investment account represents the exact value; on the contrary, he asserted that the property is worth much more than is shown in these accounts. He went into a detailed examination of the valuation exhibit submitted by Thomas W. Hulme, vice-chairman of the railroads' valuation committee, showing that in the only two roads in the South, so far reported on by the commission's Bureau of Valuation, having over 1,000 miles of line, viz., the Central of Georgia and the Nashville, Chattanooga & St. Louis, even the depreciated reproduction value at 1914 unit prices, without allowing anything for appreciation or going concern value, exceeded the book cost of road and equipment.

Passing over the question of rate of return, which Mr. Fletcher said was largely a general question, he entered upon a discussion of what rate increases were necessary to insure a six per cent return upon the value of the property. He first discussed the propriety of selecting the year 1919 as a typical year. He referred to statistics of revenue ton miles and revenue passenger miles for each of the years 1911 to 1919, inclusive, to show that only two years of that period, 1917 and 1918, showed greater revenue ton miles, and that 1917 was only slightly in excess; that only one year, 1918, showed greater passenger miles.

"The testimony that has been presented here to show that the railroads in making their estimates should have allowed for a large increase in the volume of traffic because the early months of 1920 show better results than the corresponding months of 1919 is fallacious," said Mr. Fletcher. "It is based on the assumption that because there has been an increase so far this year over that part of last year when traffic was at a low ebb the same proportion of increase will continue through the latter part of the year in comparison with the months of last year when traffic was heavy. If there should be such an increase in traffic the railroads could not handle it."

He analyzed statistics for the first four months of 1920, showing that in this period such expenses as increased cost of fuel and increases in taxes were not in effect. His argument was that when allowance is made for increased fuel costs not effective until April 15, for increases in allowances to private car lines not yet effective and other items, the carriers' estimate as to a constructive year is justified.

Mr. Fletcher said the shippers of the South are not gen-

erally opposed to an advance in revenues for the carriers, the principal exception to this being "a class of gentlemen who appear more concerned in supporting a theory than with actual business conditions." Most shippers, he said, want the commission to be liberal and that raises a question as to how the commission can be liberal under the law.

Commissioner Aitchison, when the proposal of capitalizing the standard return was under discussion, asked whether rental contracts voluntarily entered into by the carriers were entitled to any weight as an indication of value. Mr. Fletcher replied that they could hardly be said to have been entered into voluntarily and Mr. Thom said that there was a special reservation in the contracts that they should not be taken as evidence of value.

Southwestern Lines Argument

C. S. Burg, general attorney of the Missouri, Kansas & Texas, presented the argument for the Southwestern lines that are asking that they be segregated into a district separate from the other Western lines and that they be allowed an increase in rates of 33 per cent, instead of the 24 per cent asked by the Western lines as a whole. He said the executives of all Class I roads had adopted a resolution that the Southwestern lines should be segregated either now or later but that there was a division of opinion between counsel as to whether the separation was practical to be made now and as to whether it would not delay the decision in the general case. If the commission should make but one group of the Western lines, Mr. Burg said, the effect of the transportation act will have been defeated so far as the Southwestern lines are concerned. The Southwestern lines have no more in common with the Northwestern lines, he said, than the Southern lines have with the New England lines. In reply to a question by Commissioner Eastman as to the extent to which the Southwestern lines derive their revenue from divisions of through rates, Mr. Burg said that the volume of interterritorial traffic is not sufficient to make it possible to get the needed revenue by increasing divisions in the way the New England lines could. It is a matter of common knowledge and the commission has found in several cases, Mr. Burg continued, that the Southwestern lines for a series of years have been less prosperous than any other group of roads in the country, with the possible exception of New England, yet they are just as indispensable to the communities they serve as any other roads and the commission should put them on a self-sustaining basis.

Argument for Western Roads

"The fact that the present net revenues of the Western lines are inadequate is clearly recognized by all," said F. H. Wood, commerce counsel of the Southern Pacific, in the argument for the Western lines, showing that they have steadily declined each year since 1916. For the calendar year 1919 the decrease in net operating income as compared with 1916 was 43.18 per cent, while for the constructive year ending October 31, 1919, adjusted to reflect increases in expenses and other factors that were in effect at the end of the year, the decrease was 60.65 per cent. Mr. Wood also showed that if the results for the first four months of 1920 be taken as the basis for an estimate of the results for the full year the net operating income of the western lines would be only $101,436,550, as compared with $181,103,000 for the adjusted year ending October 31, 1919, on which the roads have based the estimates of their requirements and as compared with $261,456,000 actually earned in the calendar year 1919. In 1916 the net operating income of the Western roads was $460,181,522.

"Recognizing fully the inability of anyone to predict the future with certainty," said Mr. Wood, "and making due allowance for all controversial questions, the results of operation so far realized in the year 1920 indicate clearly that the figures submitted as the basis of the carriers' proposals are conservative.

"It has been suggested that no allowance has been made for possible increase in traffic, possible increase in efficiency with a consequent decrease in expenses, or for a possible decrease in wages or prices. It may be said in reply that no allowance has been taken for possible decrease in traffic, a possible further unsettlement of labor conditions, or a possible increase in prices. The traffic handled in 1919 was greater than in any previous year save the abnormal years of 1917 and 1918, with which no fair comparison can be made.

"If normal conditions are to be assumed and only normal growth considered, the traffic handled in 1919 far exceeded any justifiable prediction which might have been based on the annual growth of traffic with the world at peace, as demonstrated by the tendencies of prior years. Traffic has its ups and downs. There are those who believe that in post-war adjustments there will be a period of great commercial depression, and if this be so it may be safely predicted that the traffic for the year beginning March 1, 1920, will be less than in 1919. Neither the commission nor the carriers can safely assume the risk of failing to realize the net income required by the statute by relying upon a possible increase in traffic to make up the deficit which the figures clearly demonstrate will exist if their speculative predictions in this regard are not fulfilled. Neither can they assume the risk of failure by relying on a hypothetical increase in efficiency or of decreased operating costs per unit of traffic handled.

"The transportation machine has been worked to death. It has failed to receive the additions and improvements normally made in normal times and without which it cannot for long continue to render a service satisfactory either to owners or patrons.

"The outstanding purpose of the new law is to insure adequate transportation. All other considerations sink into insignificance as compared with this great purpose, which is even more necessary in the interest of the nation than in the interest of the railroads or their security holders.

"Adequate transportation requires three things: First an adequate plant; second, efficient and intelligent management; and third, efficient employees. The inadequacy of the existing plant is clearly demonstrated and a matter of common knowledge. Correction of this is the immediate concern of the commission. Efficient and intelligent management we have. Whether the rank and file are as efficient as they ought to be, as they could be, or as they were before the war is a subject on which much could be written. If they are not it is a condition that time alone can cure. There is a condition of unrest all over the world that has affected all industry. With these problems neither this case nor the commission has any function to perform. Neither can it with safety regulate its judgment in the solution of the problem before it by indulging in speculation as to the time when normal conditions will be restored or the effect thereof on the cost of operation. With these results accomplished transportation will continue to be inadequate unless an adequate plant is provided. Such provision depends solely upon the restoration and maintenance of confidence in railroad investments and upon the restoration and maintenance of railroad credit, all of which in turn are dependent upon the receipt of adequate revenues for these purposes.

"Much has been said of making the best of existing facilities and this will be done. But this is not enough. The railroads must catch up and must not only catch up but go ahead. It is to the interest of the nation that the western railroads as rapidly as possible should again be placed in a position where they may pursue a policy of building ahead of the development of the country rather than lagging behind it."

"A net railway operating income equivalent to 6 per cent on the aggregate property investment account of the carriers will not yield more than a fair return on the present value of the roads," said Mr. Wood, answering the arguments of representatives of shippers who have urged the commission to adopt a valuation based on cost of reproduction as calculated on 1914 prices or upon the standard return based on the pre-war years. "The property investment account is the only available aggregate figure as the basis of the values to be used for the purposes of this proceeding. Neither the cost of reproduction nor the property investment accounts include any allowance whatsoever for appreciation, going concern value, or cost of reproduction at the present level of prices. The testimony shows that the present cost of reproduction is 212 per cent of cost of reproduction at the prices of 1914.

"The carriers are not claiming the full benefit of these prices. They may not, however, be ignored either in determining cost of reproduction or present value, particularly in a case in which the rate of return fixed by the statute is placed not at the current worth of money, but at the value of money in the pre-war period. If the carriers are to receive a fair return upon their properties as related to the return on other classes of property, current values and current interest rates may not both be ignored and each be stated in terms of a pre-war period which may never return.

"The most that the commission can do is to apply the statutory rate to a value reflecting present prices. We have not asked it to do more. On the contrary we have asked it to do less. The sum demanded is materially less than would be yielded by applying a present reasonable rate of return to the lowest possible basis of pre-war values.

Shippers' Arguments

Joseph N. Teal, representing the West Coast Lumbermen's Association and the California Redwood Association, did not oppose an advance in freight rates, but argued that northwestern lumber can stand but little increase. He urged the commission to lay a part of the increased rate burden on passenger traffic. He also objected to the property investment as a basis of value.

J. F. Shaughnessy, of the Nevada Railroad Commission, said that without increased efficiency in operation the expenditure of money for more cars would merely increase the congestion. He asked that the commission temper the rate increase to the mining companies of his state.

J. Van Norman, representing Southern hardwood interests and coal operators, urged that a larger share of the increase in rates should go on finished products and less on raw materials. He also urged the passenger fare increase.

Edgar J. Rich, representing the Associated Industries of Massachusetts, and other New England interests, said the shippers of his region recognize that some rate increase is necessary, but felt that the plan of a horizontal increase is wrong and urged that the increase should be greater on finished products and less on raw materials.

John S. Burchmore, representing vegetable, oil and soap interests, said that nearly every section and industry had agreed to increases on all rates but their own. His clients were prepared to see rates materially increased, but wanted the same basis applied to all.

C. E. Cotterill, representing the Southern Traffic League, urged the commission not to put a premium on inefficiency, saying that the condition of the Southern Railway, which is operating without a guaranty, is an indication of what the railroads could do if they were compelled to. He also urged that part of the increase be placed on the passenger fares.

R. C. Fulbright, representing Texas shippers, objected particularly to any higher percentage of increase for the southwestern roads than is applied to the rest of the western roads.

Luther M. Walter, representing cement and sugar interests, insisted that if any increase is granted on cement rates it should be in fixed cents per 100 pounds so that rate relationships will be preserved and he took the same position as to sugar rates.

C. E. Elmquist, appearing on behalf of the Northern Pine Association, The Western Pine Association, and the California White Pine and Sugar Pine Association, said the shippers are willing to see some measure of increase, but not an unreasonable one. He urged something less than the percentage advance on northwestern lumber.

W. A. Wimbish, representing shippers at Atlanta and in North Carolina, Tennessee and Alabama, said his clients favor some relief for the carriers and that there should be enough of an increase to forestall another application in the near future.

F. B. Dow, representing oil refineries in C. F. A. territory, stressed the importance of preserving differentials that will continue rate relationships, although he said that certain outworn rate structures which have been held sacred should be changed and he opposed the amount of the proposed increases on the products of the refineries.

W. H. Wheeler, representing furnaces in the Buffalo district, asked for differentials on ex-lake ore, which would preserve to Buffalo the advantage of its geographical position.

Charles D. Drayton, representing the Coca Cola Company, criticized the inefficiency of the railroads and said that the railroads should be required to introduce economies in service.

J. E. Benton, solicitor for the National Association of Railroad and Utilities Commissioners, vigorously attacked the program proposed by the carriers. He objected to the proposed basis for determining the temporary value, said that the railroads are wrong in estimating their expenses on a war level, and that the figures used by the railroads in presenting their case would lead to an excessive amount of increase.

A. E. Helm, of the Kansas Commission, objected to the railroads' application as unreasonably high, said that the carriers are not performing the duties imposed upon them, and he warned them that the state commissions will not disregard old rules as to the reasonableness of rates.

Glenn E. Plumb, appearing for the railway employees, said that an increase in rates is imperative but he objected to the amount asked by the railroads and said that the percentages reached by Mr. Thorne are the maximum that can be allowed from the evidence before the commission. He also asked that the increase be put upon both freight and passenger rates, objecting to having the passenger fare increase associated in the public mind only with the wage increase because, he said, "the obvious result would be to incite public resentment against the employees."

Frank Lyon, representing the northwestern dock operators, took the position that a percentage advance is the proper method by which to increase rates, saying it will encourage the production of goods at the points nearest to the markets, but he urged that the increase be applied to the lake coal rates in effect prior to General Order No. 28.

W. E. Lamb, representing the California Citrus League, attacked the property investment accounts and read a statement by R. S. Lovett before the Senate committee in which he criticised them severely. Chairman Clark asked him what he would suggest as a basis and Mr. Lamb said that Congress had asked the commission to do the impossible. Commissioner Meyer referred to the number of roads that are not earning operating expenses and asked if that were not evidence that they need an advance in rates. When Commissioner Daniels referred to the present cost of refrigerator cars at $4,300 while the older cars are included in the accounts at $1,000 to $1,500 and asked if that would not offset some depreciation Mr. Lamb insisted that the original cost should be taken into consideration. Commissioner Daniels said he was then

placing his own interpretation on the meaning of the word value and taking it as synonymous with cost. "Isn't it possible," he asked, "that the war has so increased values, as measured in dollars, that figures that were once unfairly high are now conservative?"

Clifford Thorne, who entered an appearance in the case as representing several farmers' organizations and 412 oil companies, but who, according to a press notice of his statement issued by the American Farm Bureau Federation, "may be said to represent the public since he attacks the general basis on which the rates are figured rather than seeking to secure special favors for any particular class of shippers," made a statement asking for reductions in the amount of the proposed increase on grain and oil, and then a general statement somewhat similar to that which he had made as a witness. He described his method of calculating that the railroads could get along on a freight rate increase of 22.62 per cent, and an increase in passenger fares, even if labor gets one-half of what it is asking.

"It is our belief," he said, "that the commission should recommend unified operation of the railroads of the United States under some plan analogous to that created by the railroads in 1917. In that way, and in that way only, will the carriers be able to function. Railroads and shippers have condemned government operation; they have said it was extravagant and a costly burden. And yet within three months after getting these properties back the railroad corporations have fallen down in operation. And they are here begging for the most stupendous rate increase ever known in this or any other country on the face of the earth. Further, they state that they have reached a place in their operations which might be called a condition of 'saturation,' where more business means a loss in net revenue instead of a gain. That is the most astounding confession of inefficiency that I have ever heard from the lips of a railroad man in recent years. Frankly, I don't believe it. I think that counsel in his zeal to win a case has made a most grievous mistake.

"Private operation is on trial. If the railroads cannot function the people will be forced to take them back. We do not want to take them back; but they will have to make good. We hope and we believe that they will succeed.

"If you folks want to sound the death knell to private operation, grant these demands in their entirety; and, after you have done that, then please watch the effect on American industry, and watch the effect on the thought of the rank and file of the American people.

Closing Arguments for Railroads

The argument was closed on behalf of the railroads on July 6 by Alfred P. Thom, counsel for the Association of Railway Executives, after brief rebuttal statements had been made by Mr. Gowen, Mr. Wood, and by C. C. Rixey, of the Southern Railway, on behalf of the Southern district lines. Mr. Thom elaborated on the necessity for restoring a proper equilibrium between the means of production and distribution, saying that if transportation facilities are inadequate production must languish and the public will suffer. He emphasized the public character of the problem, saying that some shippers have endeavored to give the case the aspect of a private controversy by referring to the "demands" of the railroads. He said the railroads are making no demands. The issue is not between the railroads and the shippers but it is between those who would provide the public with transportation facilities and those who would imperil the transportation system. However, he said, very few shippers have taken that position.

Mr. Thom argued that the commission should resolve all doubtful questions in favor of the public interest. If the railroads are not given an opportunity for improved credit and to increase their facilities the public will suffer. With few and negligible exceptions public opinion is convinced that an adequate increase in rates is imperatively demanded and that inadequate service is more costly than adequate rates. In reply to the suggestion that a basis of value be reached by capitalizing the standard return Mr. Thom pointed out that this would make no allowance for the value of the property of the roads that were not taken over by the government or that had a deficit in place of a standard return. He was in some doubt as to whether it had been actually suggested that the market value of railroad securities be used as a possible basis of value, but that manifestly the use of such a basis at this time would be begging the whole question. "The commission is sitting here," he said, "to rescue the carriers from a situation which has been declared by the President and by Congress to be insecure. To use the market value as a basis would be to chain the future of transportation to the dead corpse of its past."

Commissioner Eastman asked Mr. Thom if, in his opinion, the transportation act gives the carriers any more than is allowed them by the Constitution. "The Constitution gives you nothing," replied Mr. Thom. "The Constitution is merely a protection. No public tribunal should guide its course in such a way as merely to escape the line of confiscation." He took the position that the commission should allow the full 6 per cent return instead of only 5½ per cent, but that the one-half per cent should not be specifically ear-marked for additions and betterments because a part of the net operating income must be used for that purpose even if the commission should allow only 5½ per cent.

In replying to the criticisms which have been made of the property investment accounts Mr. Thom said that the increased value of all railroad property at the present time will much more than take up any possible overstatement in the individual accounts.

There has been an almost unanimous concurrence in this case, he said, in the necessity for a general advance in rates, a willingness to have the advance made and a willingness to leave the amount of the advance to the commission. Shippers have disagreed as to the method of treating differentials and the only real difference is as to the method by which the advance should be applied. The case has developed more difference between shippers than between railroads and shippers.

At the conclusion of his argument Mr. Thom announced that when the Railroad Labor Board announces its decision the railroads will have a plan to propose for taking care of the additional amount of increased revenues required which they will submit to the commission. The plan, he said, is somewhat dependent upon the amount of the increase but the roads will propose that part of the increased revenue be raised by an increase in passenger fares. Thus far in the case they had taken the position that freight rates only be raised because they felt that the value of commodities at present bore so much greater relation to the cost of transportation than formerly that they could properly bear an increase, but an additional increase would change the situation.

C. C. Rixey, in his rebuttal argument, discussed the showing made by the Southern lines for the first three and four months of this year. Commissioner Eastman asked him if he was willing to say, as counsel for the Southern, that it had deferred maintenance to the extent of $2,000,000 since March 1, which representatives of some of the southern shippers had taken as an evidence of efficiency. Mr. Rixey said that he would not say that maintenance had been reduced to an unsafe standard but that it had been deferred temporarily because the company did not have the money to spend.

Railroad Rebuttal Testimony

Testimony on behalf of the shippers, which was completed last week, was followed by two days of rebuttal testimony on behalf of the railroads, largely as to controversies

that have arisen regarding the statistical exhibits introduced by the roads or by shippers. The railroads paid little attention to the details of rate adjustments discussed at such great length by some of the shipper witnesses, taking the position that they had little place in a general rate case of the emergency character of this one.

W. H. Groverman, representing the upper lake coal dock operators, was called as a witness for the Western roads on coal prices, saying that several companies selling to the railroads had told him the price this year would be 50 to 70 per cent, or $2.50 to $3.50 a ton, greater than last year, and that while the roads would use some Illinois and Indiana all-rail coal, instead of eastern coal via the lakes, at a lower price than the eastern coal, the difference would be largely made up by the greater tonnage required and the higher freight rate.

George W. Lamb, assistant comptroller of the Louisville & Nashville, presented corrections of the exhibits introduced on behalf of the Southern Traffic League to show that the Southern roads in three months of this year had earned more than in the constructive year ending October 31, 1919. Mr. Lamb said that if the exhibit had been properly constructed it would have shown that the Southern roads earned only $8,276,705 in the first three months of 1920, instead of $17,000,000, and that on this basis they might be expected to earn $32,000,000 for the year, after making proper allowances for increased fuel cost, income taxes, etc., whereas they need $136,000,000 to give a 6 per cent return. In connection with the discussion of the earnings of the Southern group of roads it was stated that there should be taken into consideration $2,047,700 of deferred maintenance on the Southern Railway for March and April, because this road, after declining the government guaranty, had drastically reduced its maintenance expenditures.

A. F. Cleveland, of the Chicago & Northwestern, testified on behalf of the lines in the northern peninsula of Michigan to show that they are entitled to the 24 per cent advance asked by the western lines generally on their iron ore rates. Some of the shippers had asked that there be no increase in the ore rates on the lines from the mines to the upper lake ports on the ground that the Railroad Administration in advancing the ore rates had placed all of the 30 cent advance on the proportion of the northern lines. Chairman Clark called Edward Chambers, formerly director of traffic of the Railroad Administration, to the stand to explain why the Railroad Administration had made the advance in that way. Mr. Chambers said that it was a "tough job" to divide the increase between the various lines and as it was desired to get the revenue as quickly as possible it was decided to place the 30 per cent increase on the northern lines as all of the revenues went to the government.

George H. Burgess, chairman of the valuation committee of the Delaware & Hudson, and a member of the maintenance of way committee of the Corporate Engineers' Association, testified in reply to assertions by some of the shippers that some of the western lines had been overmaintained during federal control. He presented the preceding table showing quantities of some of the principal materials used on the western lines:

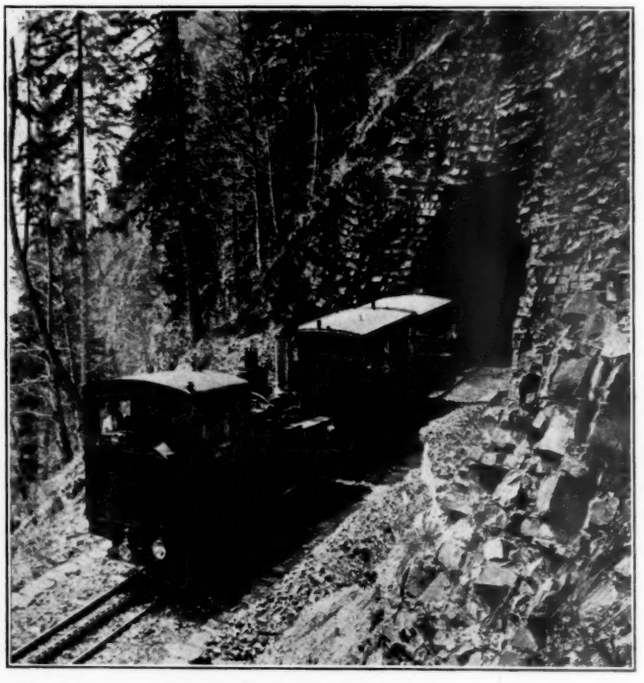
Commissioner Eastman tried to draw out the witness' opinion as between the so-called accounting method, which the Railroad Administration seems to favor in the controversy as to the sufficiency of maintenance during federal control and the engineering method, favored generally by the carriers in the preliminary discussions of the subject. Mr. Burgess asked to be excused from expressing an opinion beyond saying that the accounting method is simpler and shorter.

In connection with some telegrams regarding the cost of coal to the railroads, Commissioner Aitchison brought out and expressed some surprise that most of the Northwestern lines have not yet placed contracts for the fuel coal which ordinarily is shipped via the lakes, although a large part of the season of navigation is gone. Mr. Wettling said that they are getting some coal from Illinois "at a good round" price, and also paying $2.55 a ton freight on it. The Northern Pacific had bought some eastern coal at $7.75 a ton. Mr. Aitchison asked if the roads still expected to get their coal across the lakes. Mr. Wettling said he thought they were perhaps only hoping to. Mr. Wettling also gave some statistics regarding the crop movement, showing that from July 1, 1919, to May 30, 1920, the roads had moved 17,000,000 bushels more of grain than in the period July 1, 1918, to May 30, 1919. In view of the estimate of 570,000,000 bushels of storage capacity in the country, he said he thought there could be "no enormous amount of grain lying around on the ground," and he showed that the farm price of wheat had increased from 97½ cents to $2.58 during the war. Mr. Wettling also showed that the western lines in four months of 1920 have earned only $25,635,541 or on the basis of $101,000,000 for a year, as compared with $181,000,000 for the constructive year.

MATERIALS USED IN MAINTENANCE FOR WESTERN DISTRICT AS REPORTED BY FEDERAL OFFICERS

	Test period average	1919	Increase or decrease	Per cent increase or decrease
Treated ties.....Number	15,328,997	20,145,110	4,816,113	31.4
Untreated ties...Number	30,091,671	18,799,770	d11,291,901	d37.5
Total ties....Number	45,420,668	38,944,808	d6,475,788	d14.2
Sw. and bridge ties. Ft.B.M.	71,525,482	56,286,175	d15,239,307	d21.3
New rail.....Tons	549,556	607,347	57,791	10.5
Relay rail.....Tons	303,997	256,365	d47,632	d15.7
Total rail.....Tons	853,553	863,712	10,159	1.2
Stone ballast.....Cu. yd.	865,180	618,943	d246,237	d28.5
Gravel ballast.....Cu. yd.	3,892,520	3,333,860	d558,660	d14.3
Other ballast.....Cu. yd.	3,055,560	3,018,187	d37,373	d1.2
Total ballast..Cu. yd.	7,813,260	6,970,990	d842,270	d10.8
Miles of road			133,574	
Miles of road reported			133,574	

NOTE.—Figures for 1919 include an estimate for 30 per cent of mileage in Northwestern Region, figures from which were not obtained prior to compiling of this report.
d—Decrease.



Photograph from Underwood & Underwood, N. Y.

Brienzer Rothorn Railway in the Swiss Alps

Laws in Two States Require Car Repair Sheds

Minute Provisions of Minnesota Statute Are Carried Out in Northern Pacific Structures

RECENT STATUTES passed by the states of Minnesota and North Dakota require railroads or other concerns doing car repairing to provide suitable houses so that the men engaged in this work are protected from the weather. The Minnesota law requires that such buildings shall be constructed wherever there are six men engaged at one time in the repairing of cars, car trucks, etc., while in North Dakota the minimum is five men. Exception is made in the case of repairs to cars enroute as part of a train.

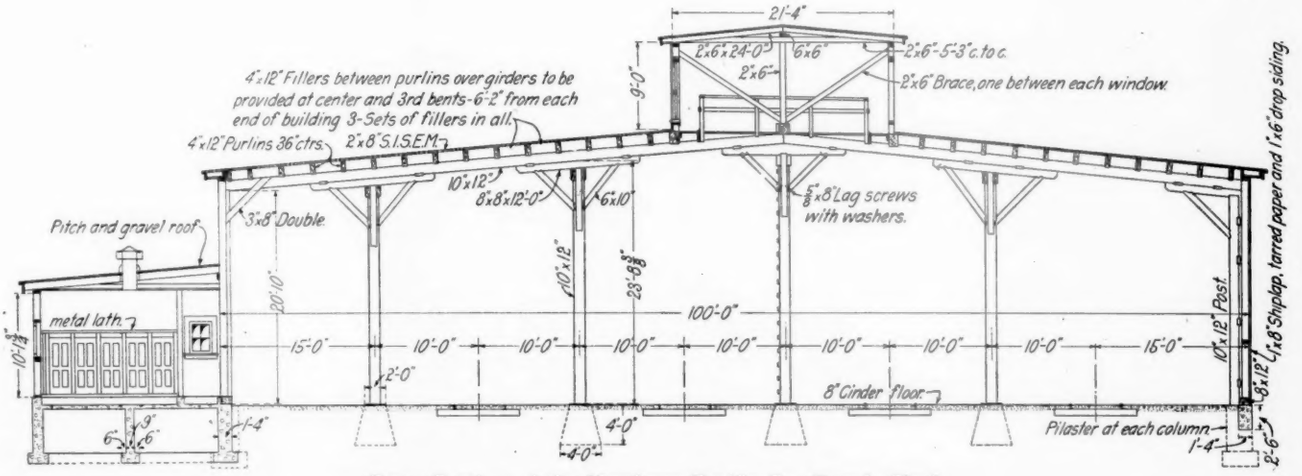
The Minnesota law goes into minute detail as to the character of the building and leaves very little of the design to be determined by the railway company's architects or engineers. The specifications as given in the statute are as follows:

"In buildings that cover more than one track the distance between the inside rails of each track shall not be less than 12 ft. Between the walls of the building and the outside rails there shall be a distance of 10 ft. The building or buildings shall not be less than 20 ft. high at the eaves. Each building shall be enclosed from roof to ground and shall have glass windows on each side not to exceed 12 ft. apart. The side windows shall not be less than 9 ft. high and not less than 4 ft. wide. Windows shall be in three sections and each section shall be equipped with pivot and opening device. The building shall be equipped with side and end doors. The end doors shall be not less than 6 ft. wide and 16 ft. high, and there shall be two such doors for each track covered by the building. The side doors shall be the same width and height as the end doors and shall be not to exceed 40 ft. apart. The roof shall be provided with a cupola the entire length of the building and be equipped with side windows of not less than three feet in width and six feet in height, having pivot and opening device that shall be at all times operative. A similar cupola shall be provided for each two additional tracks in width of such building.

"The buildings shall be equipped with necessary heating facilities and shall at all times have drainage that will keep them in a clean and sanitary condition. They shall be equipped with sanitary drinking fountains where clean, wholesome drinking water can be obtained. A sufficient number of sanitary lavatories shall be provided for said employees. Such toilets shall be properly partitioned and there shall be at least one for each 15 persons employed. All scaffolding used in such buildings shall be made of clear lumber free of all knots and shall be kept in first-class condition at all times. The use of paint spraying machines shall not be permitted inside such buildings."

The execution of the law is imposed on the Railroad & Warehouse Commission of Minnesota which shall determine as soon as practical where and what buildings are to be built by the railroads and issue orders accordingly. Penalty for failure to comply with the provisions of the statute is a fine of not less than $100 or more than $500 for each offense, and each day or part of the day that failure continues constitutes a separate offense.

The manner in which railroads are complying with these statutes is indicated by the drawing of a structure designed by the Northern Pacific for construction at Watertown, N. D. This is a frame shed, 100 ft. by 250 ft., supported by 10-in. by 12-in. posts, spaced 20 ft. center to center transversely, and 21 ft. longitudinally. The roof consists of 2-in. planks carried on 4-in. by 12-in. purlins and covered with pitch and gravel roofing. The walls are composed of a layer of 1-in. by 8-in. shiplap covered by 1-in. by 6-in. dropsiding with tarred paper between. The foundations are of concrete and the floor of cinders. Tracks are provided at 20-ft. centers. The monitor is 21 ft. wide by 9 ft. high and is equipped with corrugated-iron curtain walls at intervals of about 62 ft. as barriers to spreading fires. Toilet facilities are provided in a lean-to 18 ft. by 22 ft. in the middle of one side.



Cross-Section of the Northern Pacific Car Repair Shed

A MILLION DOLLAR FIRE in the Hawthorne (Chicago) yard of the Chicago, Burlington & Quincy on the evening of June 28 destroyed 166 freight cars standing at the freight transfer station. Of these cars 135 were loaded with merchandise and food stuffs. The cause of the fire is not definitely known, although investigation indicates that spontaneous combustion was responsible. The explosion of oil tanks and a high wind caused rapid spread of the fire. Damage to fixed property was limited to the destruction of several covered transfer platforms.

Train Accidents in April*

THE FOLLOWING is a list of the most notable train accidents that occurred on the railways of the United States in the month of April, 1920:

COLLISIONS

Date	Road	Place	Kind of accident	Kind of train	Killed	Injured
6	Atlantic C. L.....	Jesup	rc	P. & F.	2	3
16	Louisv. & N.....	Pinchora	6c	P. & P.	3	3
†29	Chi. & N. W.....	Sanborn	6c	P. & P.	5	3

DERAILMENTS

Date	Road	Place	Cause of derailment	Kind of train	Killed	Injured
2	Pennsylvania	Glen Rock.....	d. eq.	P.	1	3
4	Missouri Pacific...	Kansas City...	unx.	P.	1	4
11	Southern	Macon .....acc. obst.		P.	0	2
20	Pennsylvania	Morrow	slide	P.	0	4
23	C. C. C. & St. L..	Benton Harbor.	unx.	P.	0	11

The trains in collision at Jesup, Ga., on the night of the 6th of April, were northbound passenger No. 86, and a preceding freight. The freight train, standing in the yard, was run into at the rear by the passenger, and three freight cars and the caboose were wrecked. The engine was damaged and the engineman and fireman were killed. The collision was due to disregard of the speed restrictions within yard limits. Three passengers were injured.

The trains in collision at Pinchora, Ala., 25 miles north of Mobile, on the 16th, were southbound passenger No. 3 and northbound passenger No. 2. The engineman, express messenger, and a porter of the northbound train were killed, and two trainmen and one passenger were injured. The collision occurred about 2 a. m., in a blinding rain and electrical storm. Engineman of No. 3 had overlooked an order to meet No. 2 at Pinchora.

The trains in collision near Sanborn, Minn., on the 29th, were westbound passenger No. 517, and eastbound passenger No. 516. Both locomotives and four cars were wrecked. Two passengers and three trainmen were killed and 12 passengers were injured. The collision occurred at about 3 a. m. and was due to failure of an operator to deliver a meeting order.

The train derailed near Glen Rock, Pa., on the afternoon of the 2d of April was southbound passenger No. 544, the Harrisburg express, bound for Washington. Running at about 45 miles an hour the train struck a landslide and the two engines and three leading cars were derailed, the engines being overturned. One engineman was killed, and three trainmen were slightly injured. The derailment was due to the breaking of a spring hanger on one of the engines, relieving the weight on a front driving wheel, so that it mounted the rail at a curve.

The train derailed on the Missouri Pacific near Kansas City, Mo., on the 4th was a southbound passenger. The two engines drawing the train, together with the first two cars, were thrown off the track while running at about 40 miles an hour. The fireman was killed and four other trainmen were injured. The cause of the derailment was not determined.

The train derailed at Macon, Ga., on the morning of the 11th, about 3 o'clock, was southbound passenger No. 7. Moving at about 25 miles an hour the locomotive was overturned, and the fireman was injured, but only slightly. The derailment was due to the disarrangement or obstruction of the track at a switch by a piece of a car coupler which had fallen from a freight train.

The train derailed near Morrow, Ohio, on the 20th, was a southbound local passenger. The engine and the baggage car were thrown off the rails at a point where the track had been covered with earth by reason of heavy rain and were overturned. The engineman, fireman, and two other trainmen were injured.

The train derailed near Benton Harbor, Mich., on the 23d was southbound passenger No. 39. Running at 25 miles an hour, the train was thrown off the track at a switch and two coaches were overturned and ditched. Seven passengers and four trainmen were slightly injured.

*Abbreviations and marks used in Accident List:

rc, Rear collision——bc, Butting collision——xc, Other collisions——b, Broken——d, Defective——unf, Unforeseen obstruction——unx, Unexplained——derail, Open derailing switch——ms, Misplaced switch,——acc. obst., Accidental obstruction——malice, Malicious obstruction of track, etc. ——boiler, Explosion of locomotive on road——fire, Cars burned while running——P. or Pass., Passenger train——F. or Ft., Freight train (including empty engines, work trains, etc.)——Asterisk, Wreck wholly or partly destroyed by fire——Dagger, One or more passengers killed.

Political Views on the Railroad Problem

THE FOLLOWING are the railroad "planks" in the platforms adopted by the Democratic and Republican parties. They are self-explanatory and are placed side by side without comment that "he who runs may compare."

DEMOCRATIC

"The railroads were subjected to federal control as a war measure. Labor was treated with an exact justice that secured enthusiastic cooperation. The fundamental purpose of the federal control was achieved fully and splendidly. Investments in railroad properties were not only saved by government operation but government management returned these properties vastly improved.

"The Esch-Cummins bill went to the President in the closing hours of Congress and he was forced to a choice between the chaos of a veto and acquiescence in the measure submitted, however grave may have been his objections to it.

"There should be a fair and complete test of the law until careful and mature action by Congress may cure its defects and insure a thoroughly effective transportation system under private ownership without governmental subsidy at the expense of the taxpayers of the country."

REPUBLICAN

"We are opposed to government ownership and operation or employee operation of the railroads. In view of the conditions prevailing in this country, the experience of the last two years, and the conclusions which may fairly be drawn from an observation of the transportation systems of other countries, it is clear that adequate transportation service both for the present and future can be furnished more certainly, economically and efficiently through private ownership and operation under proper regulation and control.

"There should be no speculative profit in rendering the service of transportation, but in order to do justice to the capital already invested in railway enterprises, to restore railway credit, to induce future investments at a reasonable rate, and to furnish enlarged facilities to meet the requirements of the constantly increasing development and distribution, a fair return upon actual value of the railway property used in transportation should be made reasonably sure, and at the same time to provide constant employment to those engaged in transportation service, with fair hours and favorable working conditions at wages or compensation at least equal to those prevailing in similar lines of industry. We indorse the transportation act of 1920 enacted by the Republican congress as a most constructive legislative achievement."

The Present Difficult Transportation Problem*

Why the Railroads Are Not Able to Meet All the Requirements of Commerce. Need for Co-operation

By Daniel Willard
Chairman, Advisory Committee, Association of Railway Executives.

IT IS UNDOUBTEDLY TRUE that under existing conditions the railroads as a whole are not able to furnish, or at least they are not furnishing, the transportation necessary to meet the present requirements of the commerce of the United States, and this situation presents a serious and difficult problem which must be dealt with; but like all other problems, it can be dealt with more effectively if first of all there is a full understanding of the entire situation. It may be helpful in that connection to review some of the things that have happened to the railroads in the somewhat recent past.

Equipment Deteriorated

When the government of the United States took possession and assumed control of the railroads on the first of January, 1918, the carriers so taken over owned at that time approximately 2,260,000 freight cars, of which number 5.7 per cent or 128,780 were reported as in bad order and unfit for service. During the 26 months' period of federal control the government purchased roundly 100,000 freight cars and 2,000 locomotives, which was somewhat less than the number of freight cars and locomotives which the same railroads had been in the habit of buying during each 12 months' period previous to federal control. At the termination of federal control, on March 1, 1920, the same railroads reported ownership of 2,362,000 cars or about 103,000 more than at the beginning of federal control. They also reported 6.7 per cent equal to 153,727 as in bad order, or 25,000 more bad order cars at the end than at the beginning of federal control. During the period of federal control the government did not retire as great a number of cars as the companies had been in the habit of retiring during similar periods of time in the past, because of obsolescence and for other reasons.

Previous to the period of federal control it was customary for the railroads generally to be governed by the Master Car Builders' Rules in connection with the interchange movement. During the period of federal control this practice was changed and cars were exchanged freely between the carriers, providing the running gear, safety appliances, air brakes and draft gears were in good shape, regardless to a large degree of the condition of the cargo carrying box. The result was that the general condition of the freight cars when considered as carriers of freight was perceptibly lower at the end of federal control than at the beginning, and much lower even than was indicated by the condition reports which I have already quoted. Investigation made since the termination of federal control has developed that thousands of cars are running today and reported currently as in good order—meaning that they are safe to run—while at the same time they are unfit to perform the service for which they were designed. This fact is particularly noticeable in connection with the box car equipment. One large western carrier has recently reported that at the beginning of federal control there were on its lines 15,000 box cars suitable for carrying grain, while at the end of federal control there were only 3,000 box cars on its line suitable for that purpose. It is the general impression among railway officers, based upon a somewhat incomplete survey, that from one-fifth to one-third of the box cars in this country have been permitted to deteriorate from the floor upwards to such an extent that they are actually unfit to carry a general merchandise business, such as grain and flour, etc. The same condition obtains, but probably to a less extent, as regards open top equipment, and particularly coal carrying cars.

At the beginning of federal control the records showed that each of the railroads in the United States had upon the average about 44 per cent of its own cars upon its own line, while at the end of federal control the reports showed that each railroad had only about 22 per cent of its own cars on its own lines.

For the reason above mentioned, that is to say, because of the relatively small number of home cars on the individual railroads, it has been impossible for the different companies during the short period that has elapsed since federal control, to find out definitely the actual condition of their own cars. One of the eastern coal carrying roads has recently developed that it had on its own line upwards of 1,000 of its own coal carrying cars reported as in good order, but which were actually unfit to carry coal or heavy material, and were so marked. These cars, it is true, were safe to run with a light load such as cinders, but were unfit to carry the business for which the cars were designed.

The last monthly report submitted by the carriers shows 7.4 per cent bad order cars in the United States as against 5.7 per cent at the beginning of federal control, an increase of 50,000 cars unfit for use and actually out of service. The increased percentage of bad order cars shown on last report is probably due in large part, if not entirely, to the recent re-establishment of Master Car Builders' interchange and inspection rules. It should ordinarily be possible to keep the number of bad order cars below 4 per cent of the total number owned, and if that condition could be brought about today, it would result in immediately making effective on the railroads as a whole in the United States more than 75,000 cars that are now out of service because unfit to run. This is one of the first and most important problems confronting the carriers at the present time.

Efficiency of Car Repair Forces Reduced

This particular phase of the problem has been made more difficult because of certain things that happened during the period of federal control. To be specific, previous to federal control much of the freight car repair work on the railroads in the United States was done on a piece work basis. During the period of federal control piece work practice was discontinued on all of the railroads by order of the director general, and it is commonly believed that this change in practice has had the effect of reducing the efficiency of the car repair forces and plant by at least 30 per cent.

During the period of federal control national agreements were entered into between the director general and the different crafts employed in the railroad service, and the agreement which applies to men employed on freight car repairs contains certain limitations and restrictions which interfere seriously with the employment and efficiency of the

*Statement before the Interstate Commerce Commission at the hearing at Washington, on July 8, 1920.

workmen in that department. This also has cut down the capacity of the railroads to repair cars.

However, the outside car building companies in the past have generally been organized on a piece work basis and are so organized today, and they are free from the restrictions of the railroad national agreement above referred to, and not having new work sufficient to keep their plants in full operation, they are in position to undertake repair work for the railroads, and many thousands of freight cars are now being repaired by such outside concerns. This arrangement will result in making fit for service much more quickly than would otherwise be the case, many of the cars now unfit for service, and for the reasons above mentioned, at a considerably lower cost than if the same work were to be done by the railroads themselves. Notwithstanding every effort that can be made it will probably be six months or a year before it will be possible to get the existing equipment of the railroads in as good and serviceable condition as it was at the beginning of federal control, or in as good condition as it ought to be under existing circumstances.

Miles Per Car Per Day Should Be Increased

Another important phase of the problem is the use that is actually made of the car when it is in condition fit for service. It is customary to measure the use of railroad cars by the average load carried and by the average miles per day which the cars travel. The low average miles per car per day made by the American railroads in the past has invited constant criticism on the one side with unsatisfactory efforts to explain on the other side.

During the fiscal year ending December 31, 1916, the freight cars on all the railroads in the United States as a whole made an average of 26.9 miles per car per day. This was the highest annual average miles per day shown for the American railroads as a whole at any time within the last ten years. I have not examined the records previous to that date. During 1918, under federal control, the average miles made by freight cars per day was 24.6, and in 1919 it was 23.1. No reports have been submitted since the termination of federal control.

While upon the face of it an average movement of only 27 miles per car per day seems inexcusably small, especially in times of car shortage, like all other questions, there are also two sides to this. When we say that a car makes 27 miles per day, we mean that if the total miles made by any given car during a year should be divided by the number of days in the year, the result would be 27. Not infrequently it has been said, in criticism of the railroads, that a man could walk faster than the average movement of a freight car. Of course, such comparisons are without justification and misleading, and are certainly not helpful. The average freight car is probably loaded at least 25 times each year. Under the rules generally in effect the shipper is permitted 43 hours free time in which to load a car, dating from 7 a. m., following the hour of actual placement. The free time so allowed does not include Sundays and holidays, and there are more than 60 Sundays and legal holidays each year. After a car is loaded it is taken from the loading track to some terminal, put into a train and started on its way. If the movement is all on one railroad there ought not to be much delay in transit, but sometimes the car moves over several different railroads, and there are always some delays incident to the transfer between the different lines. When the car has finally reached its destination the consignee is also given 48 hours free time in which to unload it, and if the car is loaded with coal for tidewater or the Lakes, an average of 5 days free time is permitted, and if it is loaded with export freight for tidewater points a free time allowance of 10 days is permitted. Owing to the nature of the service cars are frequently damaged in transit or when switching, and occasionally, if not frequently, the load must be transferred from one car to another, and then the damaged car must be placed on the proper track for repairs. Customarily no repairs are now made on Sundays, or holidays, and the repair forces are all now upon an eight hour basis.

Calculations that have been made in the past would seem to indicate that the average freight car is actually in a train moving between one terminal and another 2.6 hours out of the 24, or about 11 per cent of the time; that it is actually placed at the service of the shipper or receiver about 37 per cent of the time, and that the rest of the time it is in the process of being moved to or from the place where loaded or unloaded, to the terminal where it is put into trains, or is on transfer tracks or being repaired, etc.

Undoubtedly much can be done by the railroad itself to bring about a better use of the cars that are actually fit to run, but the railroad alone cannot do all that is possible to be done in that connection. The maximum efficiency of freight cars can only be realized by means of effective and sympathetic co-operation between the railroad and the user. While the highest annual average movement per car per day upon the railroads as a whole during the past 10 years was only 26.9 miles, I believe it should be and really is possible to obtain an average movement of 30 miles per day under normal circumstances. Some railroads do make as high as 40 miles per car per day, but it seems hardly probable that such results can be obtained immediately on all roads and particularly by the railroads serving the large industrial centers and the coal mines, but I do believe that as a whole an average movement of 30 miles per day is or ought to be attainable. To accomplish this the individual railroads should first of all keep their cars in the best possible condition, and this is desirable from every point of view for reasons of economy as well as of efficiency. I believe it is possible to keep the total bad order cars as low as 4 per cent, certainly as low as 5 per cent of the total number owned.

Shippers Must Co-Operate

It is important, especially in times of car shortage, that the shippers should load cars as quickly as is economically possible and practicable after they are received. The shipper also should furnish prompt and definite billing instructions, and the instructions so furnished should take the car if possible to its ultimate destination. Much delay is caused by the practice of billing cars subject to order or re-consignment in transit, and numerous other devices that have come about from time to time. All arrangements of this kind serve to retard the movement of cars. All arrangements of this kind are in effect a special privilege aside from the service of transportation, and in times of car shortage such privileges are at the actual expense of those whose business is interfered with because of their inability to ship at all.

Railroad statistics show that the average car load on all the railroads in the United States is only about 70 per cent of the carrying capacity of the car, and in addition to that about 32 per cent of the total car mileage is made with empty equipment. A great deal can be done towards getting a more effective use of cars by increasing the car load, and this is a matter almost entirely within the control of the shipper, and serious consideration should be given among other things to the revision of minimum car load regulations, to the end that a more effective use be made of all cars.

It is of course incumbent upon the railroads to do everything that is economically possible and practicable at all times to reduce all delays to a minimum. I need not at this time discuss in detail what the railroad can and ought to do, but I am sure if the carriers and the shippers will all co-operate very great benefit will result therefrom. The extent of the benefit may be indicated somewhat by the fact that an average increased movement of one mile per car per day for all of the cars in the United States, based upon present performance, would in effect add 100,000 cars to the available equipment, and an average increase of one ton per each

loaded car would also add in effect 80,000 cars to the available equipment.

Assuming that the carriers will do all that they can to put the existing equipment in serviceable condition as soon as possible, and assuming that the carriers and the shippers together will do everything they can in co-operation to make the best possible use of the equipment available, there will still be a shortage of cars for some months to come, and until such time as the railroads can provide, by purchase or construction, the number of cars and engines necessary to take care of the peak-load—what else ought we to do to meet the situation? Fortunately under the new Transportation Act of 1920 the Interstate Commerce Commission is authorized to deal promptly and effectively with emergencies of the kind just mentioned, and I would suppose that the commission would be governed by the desire at all times to follow such a course as would seem to promise the greatest good to the greatest number. Of course, such a test is only relative, although in times of emergency it ought not to be difficult to decide, if there is only one car available, whether it should be used to move foodstuffs and fuel which may be immediately needed, or something else of less immediate importance to the welfare of the public as a whole. The commission, being fully informed, it will undoubtedly use its best judgment under any given circumstances.

The Labor Situation

There is one other phase of the problem which I have not so far referred to, but which has had a very definite bearing on the situation during the last three months. I refer to the numerous strikes of railroad men that have been taking place since early in April. There are, I suppose, approximately 2,000,000 men employed by the American railroads. I do not know how many men have actually been on strike at any one time, or, as they have preferred to put it, on vacations, since the movement started in April, but I should judge from such reports as I have seen that probably at no time have more than 15 or 20 thousand, perhaps 30 thousand, employees been out of service, a relatively small percentage of the total number employed. It so happens, however, that the strikes have occurred chiefly in terminals and at other points where a minimum number of men, by withdrawing from the service, would cause the maximum amount of inconvenience. One effect which the strike in Chicago had is clearly shown by figures kept by the Car Service Commission in Washington. When the railroads were turned back to the owners at the end of federal control, reports showed that in the United States as a whole about 100,000 cars were awaiting movement. At the end of March the number so held had been reduced to 90,000. The Chicago strike began early in April and by the middle of that month the number of delayed cars awaiting movement in the country as a whole had reached the unprecedented figure of 288,000. These cars were not only unnecessarily delayed, but they were in effect absolutely withdrawn from service. It is true that since the middle of April the number so held has been gradually reduced until today it is substantially the same as it was the first of March, but even so, the number of cars now held awaiting movement is 60,000 or 70,000 greater than it ought to be, and in my opinion greater than it would be if the labor difficulties which have interfered so seriously with the freight movement for the last three months should be cleared away.

You are all more or less familiar with the labor situation and I need not discuss the matter in detail. It may be fairly hoped, I believe, that when the award is announced by the Labor Board, now sitting in Chicago, the difficulties that have confronted the railroads in this respect will disappear, and if thereafter the yardmen and other employees having had their pay and working conditions satisfactorily adjusted, will then take hold and work as well as American railroad men know how to work when they want to, I am hopeful that the railroads will be able to make the existing equipment, by virtue of increased mileage, much more efficient and in that way gradually bring about a normal condition.

In the meantime the fullest possible co-operation should be had between the railroads and the shippers. The railway managers appreciate the responsibility that rests upon them under existing circumstances. I myself believe that the institution of private ownership and operation of the railroads is at stake, and that the test which the public will apply to the question of whether or not private ownership is to continue will be the test of service. The railway managers are willing to meet that test. They appreciate that the railroads as a whole must furnish the transuortation needed by the country as a whole, and that it will not satisfy the requirements if some of the railroads furnish ample transportion while others are not able to do so. It is the definite purpose of the railroads, by voluntary effort and co-operation, to see that in times of emergency all facilities are used in the most effective manner, in order that the public as a whole may realize the greatest measure of transportation service.

It should, however, be kept in mind that at the present time the railroads are called upon to move an unprecedented amount of business with an impaired and insufficient plant. I do not wish to be understood as criticising the government because of the condition of the railroads; I prefer rather to think that their condition is one of the by-products of the war. In any event, if the war had not happened, I believe the railroads would have been able to perform the transportation service of the country as well today as they did generally before the war, but, regardless of the cause, the problem confronting us, as I see it, is this—with a certain limited amount of transportation plant under the conditions of private ownership, how can that plant as a whole be used so as to perform the greatest amount of transportation in the public interest? I believe it can be done by systematic and active co-operation between the shippers and the railroads, and I believe further that for a time it will be necessary for the Interstate Commerce Commission in the exercise of the emergency authority given it under the act to order priority of service in favor of certain commodities. I do not think it will be necessary to wholly curtail the movement of any particular kind of business. I do think it will be necessary for a time, however, to give preference to certain particular kinds of business more important than others from the public standpoint. I also believe that if a way can be found so that the railroads can in the near future place orders for such additional cars and engines as seem necessary and so that the new equipment will be available for next year's business, that by another Spring the railroads will be able to take care of all the business of the entire country. This, they understand, is what they will be expected to do. This is what they are attempting to get in shape to do.

Photo from Underwood & Underwood, N. Y.

A Tractor Proves a Useful Emergency Switching Locomotive

General News Department

The International Railroad Master Blacksmiths' Association will hold its annual convention on August 17, 18 and 19, at the Hotel Statler, Detroit, Mich., instead of at Birmingham, Ala., as had been previously planned.

Sixty thousand dollars was stolen from the express car on a train of the Charleston & Western Carolina, near Augusta, Ga., on the morning of June 30. A single robber intimidated the messenger and an armed guard, and then, chloroforming them, threw the two safes containing the money out of the car and, presumably, carried them off in an automobile. The messenger and two other men have been arrested on charges of collusion—one of the men, a "jitney driver," being the robber—and are said to have confessed.

The Senate special committee on reconstruction and production, of which Senator Calder of New York is chairman, is conducting a general investigation of the effect of a shortage of transportation facilities on the housing shortage. The committee is especially interested in stimulating construction work of all kinds, including housing, and has found that progress in this work has been seriously interfered with both by the coal shortage, which affects the ability to produce construction materials, and by the car shortage, particularly in view of the priority given to coal. Senator Calder has been conferring on the situation with members of the Interstate Commerce Commission and railroad officers and he proposes to hold a series of hearings in New York during July, and later in the principal cities throughout the country.

The strikes of yardmen at Philadelphia, Baltimore and other places in that vicinity have died out, and freight has been moving in nearly normal volume since July 1. Officers of the Pennsylvania on that day declared the strikes of yardmen and the threatened strike of shopmen "closed incidents"; and conductors were given the names of 225 former employees whose season passes were no longer to be accepted for transportation. The Baltimore & Ohio and the Western Maryland reported the coal mines on their lines as having been furnished with nearly normal supplies of cars. At New York City the Merchants' Association repeats its assertion of a week ago that the automobile trucks put in operation by the merchants to thwart the obstructive acts of the union truckmen had fully succeeded in clearing up the congestion of freight on the steamship piers.

Engineering Council, which, in connection with the American Institute of Architects and the Associated General Contractors of America, has been studying the matter of Payment for Estimating, adopted on June 17 the conclusion in a report of a special committee to which the report of the conferees had been referred, as follows: "Whenever in the execution of work, competitive bids are called for on detailed plans and specifications, those invited to bid should be provided with such an estimate of the quantities involved in the work as the surveys, plans and specifications permit to be made. The intent of this requirement is that a single estimate of quantities should be made by or for the engineer, architect or other representative of the owner, so that each separate bidder will not be put to the expense of making up a separate schedule for estimates. This latter practice not only means a needless waste in the carrying on of contract work, but also discourages bidders and causes needless repeated handling of official plans and specifications in making up separate schedules of estimates."

The Industrial Cost Accountant Association, with headquarters in the Peoples Bank Building, Pittsburgh, Pa., was organized at a meeting held at Chicago, on June 18. Representatives from a number of national industrial associations and numerous industries were present. M. F. Simmons, supervisor of costs for the General Electric Company, was elected president; C. H. Smith, director of clerical operations of the Westinghouse Air Brake Company, was elected first vice-president; Roland H. Zinn, chief of the cost accountant bureau of the Tanners' Council, second vice-president; and A. A. Alles, Jr., secretary of the Fawcus Machine Company, Pittsburgh, secretary and treasurer. The object of the association is given in article II of the constitution, as follows: Its object shall be the standardization of accounting and cost terminology and the adoption of standard governing principles; the promotion of active co-operation and interchange of experiences between representatives of manufacturers engaged in similar activities; the education of the members and their business associates in complex economic problems of industry; to assist standardization committees in each line of industry in establishing uniform accounting and cost practices; to act as a clearing house in distributing to all members the development in cost-accounting practices to the end that uniformity, once established, may be maintained.

Railroad Administration Announces First Complete Settlement

The Railroad Administration announced on July 6 that it had completed its first final settlement with a railroad company covering all claims arising out of the operation of its property by the government during the period of federal control. Under this settlement the Spokane, Portland & Seattle will receive $1,600,000 in cash as the sum remaining after the balancing of all claims of the company against the government and of the government against the company. The figure is a round one, adopted as a basis of settlement, and does not exactly represent the sum of the various items. The greater part of it represents the compensation due the company, but an item for under maintenance is also included.

Labor Leaders to Pass on Wage Award

General chairmen of the "Big Four" railway brotherhoods will meet in Chicago on July 19 to pass on the wage award of the Railroad Labor Board, according to a recent announcement by President W. G. Lee, of the Brotherhood of Railroad Trainmen. Mr. Lee stated that the meeting was called for July 19 on the assumption that the Board would not hand down a decision before the "dead line" date which has been set at July 20 by Judge R. M. Barton, chairman of the Board. The members of the "Big Four" brotherhoods will be represented by four men from each road, the number of general chairmen totaling about 1,000. The action of the board in announcing a date on or before which its award will be made public has resulted in alleviating much of the unrest among railway employees and all of the organizations, with the possible exception of the outlaw "vacationists," have adopted a policy of watchful waiting until the general leaders have approved or disapproved of the board's final decision.

Injunction Against Assigned Car Rule

The National Coal Association announced on June 30 that Judge Dayton, in the United States Circuit Court at Philippi, W. Va., had granted a temporary injunction on June 29 against the Baltimore & Ohio to restrain it from pursuing the practice of assigning cars for railroad fuel at various coal mines along its route. Other injunction suits against other railroads are pending in different states, in an effort to break up what the operators characterize as a "vicious" practice. The injunction was issued at the instance of the Lambert Run Coal Company, Fairmont, W. Va. It was alleged that the Baltimore & Ohio, which serves 750 bituminous coal mines in Pennsylvania, West Virginia, Maryland, Ohio and Indiana, has furnished an ample supply of cars to certain mines which have supplied it with railroad fuel, while other mines, which have been endeavoring to carry out contracts to individual customers, have had only a meager supply.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF APRIL, 1920

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Arizona Eastern	378	$206,226	$51,454	$281,589	$70,617	$49,234	$2,081	$141,675	$20,238	$285,978	101.56	—$4,839	$25,676	—$30,065	$4,931
Atlanta & W. P.	93	121,998	83,747	231,116	24,841	33,421	5,042	85,007	9,129	161,429	69.84	69,686	8,928	60,758	7,696
Carolina C. & Ohio	283	566,302	35,324	609,226	76,597	121,688	16,734	169,011	17,043	400,947	65.81	208,279	28,830	179,423	152,278
Cent. of New England	301	294,437	28,354	349,939	151,492	99,135	2,677	248,241	15,209	516,907	147.71	—166,968	16,538	—183,505	—119,743
Copper Range	142	51,562	12,486	67,839	18,884	18,325	2,268	34,324	2,800	76,602	112.91	—8,762	6,824	—15,586	—3,216
East St. Louis Connecting	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Great Northern	8,176	6,535,736	1,459,233	8,953,850	1,946,092	1,812,021	80,178	3,581,730	234,748	7,785,437	86.95	1,168,413	794,571	369,148	—39,078
Louisiana Western	207	271,262	101,014	395,307	100,911	76,667	4,575	102,981	13,738	302,183	76.44	93,124	20,320	72,757	—30,311
Kansas City Terminal	27	.....	.....	86,548	21,113	26,103	.....	45,244	2,833	97,320	112.44	—10,772	27,350	—38,122	8,123
Midland Valley	389	226,316	100,612	337,572	82,222	53,542	3,740	122,722	20,083	182,309	54.01	55,263	7,183	48,077	—2,715
Green Bay & Western	252	58,955	19,561	87,267	26,007	19,737	926	40,878	2,307	89,855	102.96	—2,588	6,824	—9,412	51,602
Morgan's La. & Texas R. R.	401	557,114	172,351	785,673	255,029	158,333	7,120	262,883	25,508	712,438	90.67	73,236	42,938	29,964	—229,197
N. Y., Phila. & Norfolk	122	370,984	84,800	513,067	73,689	154,328	8,788	365,415	13,755	630,796	122.94	—117,729	24,101	—141,868	—11,076,244
Penn. R. R. Co	7,259	20,753,593	9,619,730	34,003,252	7,759,920	11,477,398	309,399	19,971,259	1,065,657	41,315,881	121.51	—7,312,630	1,573,436	—8,889,428	—22,677
St. Louis Merchants' Bridge Terminal	9	.....	293	157,381	45,754	51,864	833	149,435	10,624	258,510	164.25	—101,129	9,845	—110,974	172,834
St. L. S. W.	968	1,172,584	172,192	1,408,492	189,926	261,868	41,542	396,508	46,761	942,585	66.92	465,907	54,694	411,213	—21,817
St. L. Transfer	6	.....	.....	44,523	7,166	13,035	195	30,940	2,874	54,211	121.75	—9,688	272	—9,960	—1,905,793
Southern Pacific	7,087	5,976,395	4,171,051	11,498,408	2,305,529	3,082,832	140,723	5,052,262	432,574	11,370,000	98.88	128,408	828,073	—700,383	—48,200
Term. R. R. of St. Louis	37	657	.....	225,072	67,232	56,099	—873	100,714	12,843	241,281	107.21	—16,208	39,276	—55,484	144,040
West Jersey & Seashore	361	215,784	530,800	808,452	212,064	189,493	9,144	540,058	26,051	983,965	121.71	—175,513	53,173	—228,687	—22,608
Western Ry. of Ala	133	122,448	66,711	208,665	21,652	43,271	4,822	77,490	7,712	158,783	76.09	49,882	7,175	42,707	4,608
Wichita Falls & N. W	329	116,008	45,294	173,487	69,289	39,451	422	103,326	7,743	220,232	126.94	—46,745	10,596	—57,392	11,013

FOUR MONTHS OF CALENDAR YEAR 1920

Arizona Eastern	377	977,474	214,551	1,304,999	257,114	197,698	14,947	457,248	65,252	1,001,684	76.75	303,316	95,800	207,353	—98,896
Atlanta & W. P.	93	260,924	169,796	488,719	53,529	77,005	10,632	177,195	20,134	344,166	70.42	144,553	20,810	123,743	—192,661
Bessemer & Lake Erie R. R.	217	2,481,529	143,807	2,755,682	307,994	1,241,241	44,065	1,161,814	104,895	2,885,807	104.72	—130,126	59,400	—159,542	141,818
Bingham & Garfield Ry	36	565,829	6,940	582,539	124,056	149,745	6,641	139,377	13,299	439,584	75.46	142,956	29,700	113,249	—64,460
Birmingham Southern	31	123,921	.....	176,784	17,259	27,735	3,980	112,634	13,628	175,237	99.12	1,546	7,017	—5,488	—2,643,598
Boston & Maine	2,273	14,282,341	6,725,318	23,981,912	4,013,207	5,921,095	161,627	15,182,519	807,007	26,192,327	109.21	—2,210,415	926,936	—3,140,717	142,769
Brooklyn Eastern District Terminal	9	131,202	.....	145,998	26,736	24,189	543	104,639	9,288	165,395	113.21	—19,397	11,946	—31,343	70,977
Buffalo & Susquehanna R. R. Corp	296	857,679	28,066	907,322	148,757	394,223	8,994	348,902	38,368	939,244	103.51	—211,182	13,100	—331,834	51,669
Buffalo, Rochester & Pittsburgh Ry	589	4,761,662	524,281	5,512,143	758,396	2,099,963	55,879	2,662,359	136,699	5,723,325	103.83	—211,182	120,000	—189,026	—109,704
Canadian Pacific Ry. (Lines in Maine)	233	875,336	273,327	1,198,792	178,055	302,020	11,876	833,067	14,001	1,339,018	111.69	—140,226	48,800	—633,483	—324,675
Carolina C. & Ohio	282	1,986,177	129,681	2,187,447	295,194	550,762	33,832	676,439	54,074	1,609,644	73.58	577,803	62,844	514,873	252,204
Central of Georgia Ry	1,924	5,221,367	2,021,021	8,422,337	1,367,548	1,570,064	164,322	3,532,212	263,291	6,911,384	82.06	1,510,953	304,803	1,206,126	921,689
Cent. of New England	301	1,426,847	99,729	1,635,423	578,256	575,089	11,063	1,181,852	62,398	2,409,080	147.31	—773,657	72,938	—846,653	—657,383
Central R. R. Co. of New Jersey	686	9,469,476	2,420,110	13,071,705	1,733,097	4,492,302	91,687	7,477,295	359,852	14,226,726	108.83	—1,155,020	974,494	—2,129,646	—2,423,017
Central Vermont Ry	413	1,285,823	339,605	1,878,255	296,224	603,067	41,127	1,416,881	75,811	2,442,098	130.01	—563,843	69,600	—633,483	—324,675
Charleston & Western Carolina Ry	342	868,717	202,004	1,136,560	222,978	263,544	16,851	584,225	9,905	1,097,501	96.56	39,059	40,250	—1,191	—121,865
Chesapeake & Ohio Ry	2,517	19,902,174	3,036,676	25,056,831	3,313,993	6,745,079	189,865	10,176,333	528,872	21,068,163	84.08	3,988,668	939,240	3,148,309	400,555
Chicago & Alton R. R	1,050	5,556,435	1,896,344	8,469,267	1,070,442	2,410,139	103,445	4,081,979	232,927	7,947,538	93.83	521,728	269,047	252,173	—122,766
Chicago & Eastern Illinois R. R	1,131	6,178,424	1,571,289	9,154,083	905,874	2,968,235	83,572	3,903,337	242,890	8,149,769	89.02	1,004,314	370,000	632,555	1,515,472
Chicago, Detroit & Canada Gd. Trk Jct.	62	386,933	64,276	546,835	53,253	116,884	4,648	277,638	12,385	464,768	84.99	82,067	17,338	64,710	—106,565
Chicago, & Erie R. R	269	2,602,420	232,865	3,238,366	342,017	660,105	48,257	1,933,234	109,685	3,108,323	95.98	130,043	157,727	—27,966	—205,769
Chicago & North Western Ry	8,090	29,376,419	10,842,889	46,233,257	5,930,375	11,166,516	344,795	24,095,244	1,170,678	43,120,131	93.26	3,113,127	2,575,621	532,647	—750,707
Chicago, Great Western R. R	1,496	4,796,999	1,699,545	7,433,359	1,234,986	1,910,945	111,417	3,623,004	205,259	7,150,283	96.19	283,071	241,665	40,120	183,507
Chicago, Indianapolis & Louisville Ry	654	2,965,466	930,224	4,496,082	499,566	1,446,579	90,668	2,013,227	117,157	4,223,185	93.93	272,897	195,966	76,892	—376,589
Chicago Junction Ry	12	.....	.....	1,025,735	182,846	214,779	1,304	909,039	33,624	1,341,592	130.79	—315,857	11,739	—327,597	108,006
Chicago, Milwaukee & St. Paul Ry	10,628	34,953,747	8,999,609	51,122,216	6,919,171	13,136,567	392,544	25,524,527	1,476,189	47,735,668	93.38	3,386,547	2,560,261	800,910	1,036,690
Chicago, Rock Island & Gulf Ry	463	1,549,294	365,784	2,149,874	2,319,850	331,461	27,949	824,779	51,157	1,550,541	72.12	599,333	63,701	535,466	430,256
Chicago, Rock Island & Pacific	7,607	26,567,111	9,587,879	40,918,204	6,216,771	9,571,459	430,277	18,682,738	896,652	35,972,001	87.91	4,946,204	1,595,601	3,347,777	2,514,458
Chicago, St. Paul, Minn. & Omaha Ry	1,749	6,331,000	2,528,394	9,900,357	858,993	1,848,861	88,781	4,689,402	284,181	7,823,703	79.02	2,076,654	505,976	1,568,551	601,475
Chicago, Terre Haute & Southeastern	374	1,404,040	95,089	1,551,059	203,298	563,359	17,666	697,337	42,947	1,531,082	98.71	19,977	75,000	—55,023	—107,230
Cinn., Indianapolis & Western R. R	321	996,894	200,087	1,355,904	198,321	505,225	28,602	632,446	63,984	1,432,498	105.64	—76,594	51,179	—127,778	43,210
Cincinnati Northern R. R	251	861,719	76,156	1,008,548	112,099	197,471	12,657	379,918	21,539	723,662	71.75	284,886	40,160	244,723	85,749
Cleveland, Cinn., Chicago & St. Louis Ry	2,408	18,199,228	5,359,273	26,890,038	2,182,959	5,148,675	394,401	10,855,255	487,135	19,247,481	71.58	7,642,557	826,305	6,812,607	3,834,198
Colorado & Southern	1,099	3,268,069	763,422	4,491,330	534,191	915,373	40,314	1,553,498	158,464	3,230,809	71.93	1,260,521	221,563	1,037,787	344,005
Colorado & Wyoming	43	67,265	3,464	269,261	43,569	66,256	978	135,900	16,211	262,914	97.64	6,347	20,000	—13,653	—76,292
Copper Range	142	221,697	52,312	289,487	78,090	69,550	8,063	153,278	12,567	321,549	111.08	—32,062	24,015	—56,077	—47,196
Delaware & Hudson Co	858	9,425,966	981,739	11,159,740	1,192,830	3,663,575	90,603	5,836,371	484,021	11,351,896	101.72	—192,156	318,142	—510,737	—390,496
Delaware, Lackawanna & Western R. R	956	14,237,431	3,575,833	20,913,874	2,204,535	5,247,064	279,512	11,236,168	524,983	19,775,364	94.56	1,138,510	1,354,167	—216,743	—3,387,013
Denver & Rio Grande R. R	2,585	8,653,141	1,916,202	11,555,788	1,306,544	2,741,222	124,394	3,890,350	300,996	8,542,749	73.92	3,013,039	490,000	2,507,757	1,728,310
Denver & Salt Lake R. R	255	568,880	81,917	695,400	259,562	380,187	3,307	482,777	31,414	1,157,247	166.41	—461,847	42,332	—504,248	—70,918
Detroit & Mackinac Ry	376	365,432	133,200	562,722	92,804	171,935	10,843	311,690	38,313	625,423	111.14	—62,702	24,007	—86,709	50,731
Detroit, Grand Haven & Milwaukee	195	925,548	169,535	1,304,522	182,052	349,516	18,493	886,329	44,486	1,480,711	113.51	—176,188	13,759	—190,273	—211,855
Detroit, Toledo & Ironton R. R	454	1,271,570	54,306	1,434,020	247,530	323,562	18,813	759,069	55,710	1,403,103	97.84	30,917	35,253	—5,136	240,690
Duluth & Iron Range R. R	292	438,060	90,351	615,363	292,500	408,306	2,459	504,560	63,719	1,273,416	206.93	—658,054	36,978	—695,309	—430,272
Duluth, Missabe & Northern Ry	407	535,078	187,525	862,771	542,550	630,586	10,855	688,646	75,257	1,954,712	226.56	—1,091,941	51,161	—1,143,135	—1,036,528
Duluth, South Shore & Atlantic	614	865,548	349,698	1,441,973	243,654	308,124	21,168	853,110	47,038	1,493,550	103.58	—51,577	82,000	—133,645	—38,156

REVENUES AND EXPENSES OF RAILWAYS

FOR FOUR MONTHS OF CALENDAR YEAR 1920—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Duluth, Winnipeg & Pacific Ry	178	$666,826	$114,665	$794,898	$99,658	$153,662	$12,218	$375,073	$34,038	$674,654	84.87	$120,244	$41,468	$78,775	$10,660
East St. Louis Connecting	3	.....	.....	419,350	55,056	151,333	1,071	330,127	15,307	552,895	131.84	—133,545	9,600	—143,145	—48,974
El Paso & Southwestern Co	1,027	3,401,783	885,679	4,659,793	890,978	867,574	47,074	1,224,870	136,631	3,197,488	68.61	1,462,305	321,659	1,140,515	—204,935
Elgin, Joliet & Eastern Ry	832	6,002,543	18	7,035,770	609,728	1,779,255	25,594	2,939,561	130,827	5,484,676	77.95	1,551,094	206,882	1,344,212	—511,438
Erie R. R	1,989	21,935,659	3,838,743	29,258,043	3,593,793	10,720,697	294,772	16,021,089	847,650	31,717,599	108.41	—2,459,557	980,505	—3,460,484	—288,437
Florida East Coast Ry	764	2,617,599	1,791,504	5,103,255	507,461	724,288	37,948	1,723,043	89,315	3,122,161	61.17	1,981,094	157,933	1,822,822	1,445,086
Fonda, Johnstown & Gloversville R. R.	31	137,553	265,311	422,740	53,765	38,503	1,793	160,808	20,890	275,759	65.23	146,982	19,950	127,032	29,036
Ft. Smith & Western R. R.	253	438,023	114,226	591,336	148,215	146,642	16,710	262,120	26,997	605,464	102.38	—14,127	20,000	—34,674	—53,585
Ft. Worth & Denver City Ry	454	2,428,659	1,261,848	3,924,656	624,070	873,585	23,240	1,758,690	121,560	3,416,162	87.04	508,495	90,000	417,929	—342,070
Ft. Worth & Rio Grande Ry	235	361,653	239,432	652,371	158,121	103,438	7,455	350,764	24,514	644,292	98.76	8,079	15,140	—7,077	119,705
Galveston Wharf	13	.....	.....	393,570	104,360	8,923	1,226	155,634	8,949	337,393	85.72	61,178	53,400	7,778	—3,506
Georgia R. R	328	1,421,746	528,967	2,107,186	235,929	443,890	41,075	1,134,078	73,419	1,929,218	91.55	177,968	23,800	154,163	—316,470
Georgia & Florida Ry	405	301,615	88,612	445,262	235,844	94,102	15,993	325,465	29,319	700,723	157.37	—255,462	24,943	—280,702	—190,354
Grand Trunk Western R. R	350	3,495,518	754,449	4,726,953	422,001	1,412,913	61,246	2,270,562	151,065	4,344,959	91.91	381,994	182,443	199,695	—444,472
Great Northern	8,176	22,348,829	5,738,058	34,071,721	6,367,163	7,609,216	255,128	15,587,584	747,712	31,076,471	91.21	2,995,251	2,883,297	101,946	—975,611
Great Northern Ry	8,175	22,348,827	5,738,058	34,071,721	6,367,163	7,609,216	255,129	15,587,583	747,712	31,076,471	91.21	2,995,251	2,883,297	101,947	—975,611
Green Bay & Western	252	281,458	76,427	389,102	56,610	96,258	4,306	182,652	10,625	350,445	90.06	38,656	27,520	11,136	—10,691
Gulf & Ship Island R. R	307	643,324	173,103	914,100	244,365	228,004	20,739	372,739	44,607	912,151	99.78	1,949	45,967	—44,184	20,300
Gulf, Colorado & Santa Fe Ry	1,922	5,745,148	1,894,744	8,485,564	2,068,985	1,680,255	85,157	3,481,407	210,341	7,502,184	88.41	983,380	345,866	636,835	112,373
Gulf, Mobile & Northern R. R	469	862,996	210,776	1,192,181	333,852	268,937	38,844	498,380	49,887	1,189,901	99.80	2,280	44,212	—42,372	79,640
Hocking Valley Ry	350	3,479,529	384,714	4,093,556	466,018	1,410,634	44,022	1,634,820	107,424	3,662,861	89.47	430,696	275,334	155,362	752,978
Illinois Central R. R	4,799	31,077,454	8,115,897	43,887,695	7,098,715	11,302,892	408,318	17,980,764	988,153	38,122,834	86.86	5,764,860	2,190,820	3,565,967	3,620,821
Illinois Terminal	24	260,059	.....	276,388	14,950	34,190	2,945	75,182	18,572	145,841	52.76	130,547	4,631	125,907	—71,360
Indiana Harbor Belt R. R	120	.....	.....	2,369,481	403,460	539,687	9,638	1,696,410	71,734	2,720,930	114.83	—351,449	40,959	—392,554	—154,441
International & Great Northern Ry	1,159	3,933,042	1,007,929	5,536,790	1,362,504	1,427,076	68,549	2,916,281	179,887	5,979,091	107.98	—442,301	130,003	—575,768	146,800
Kanawha & Michigan Ry	176	1,106,179	188,119	1,370,164	219,496	537,432	10,221	558,705	48,218	1,374,076	100.29	—3,911	100,000	—103,913	52,290
Kansas City, Mexico & Orient R. R	272	389,644	64,697	499,090	176,803	170,434	11,959	261,858	37,340	658,394	131.91	—159,304	30,815	—190,167	42,501
Kansas City, Mex. & Orient Ry. of Tex.	465	400,068	84,819	545,194	225,314	183,607	12,022	294,166	41,243	756,353	138.73	—211,159	25,169	—236,656	42,539
Kansas City Southern Ry	779	4,170,523	914,016	5,655,469	826,395	1,324,627	110,019	2,183,436	217,015	4,659,882	82.39	995,587	253,079	741,174	508,143
Kansas City Terminal	27	.....	.....	458,304	79,036	125,913	.....	269,852	9,327	493,739	107.73	—35,436	116,321	—151,756	—99,123
Lake Erie & Western R. R	741	2,651,462	245,550	3,134,881	371,726	884,386	60,601	1,415,859	96,218	2,828,747	90.23	306,135	170,000	134,333	229,810
Lake Superior & Ishpeming Ry	34	22,274	1,088	27,727	75,883	76,352	932	41,551	10,050	204,768	73.85	—177,041	17,636	—194,677	—20,476
Lake Terminal R. R	12	.....	990	384,991	53,308	106,696	.....	277,793	198	437,995	113.76	—53,004	23,417	—76,421	—89,198
Lehigh & Hudson River Ry	96	603,286	13,944	658,012	95,611	178,706	6,483	387,865	28,729	697,394	105.98	—39,382	34,751	—74,161	—143,746
Lehigh & New England R. R	230	1,211,187	9,434	1,276,987	149,838	313,371	28,202	501,664	48,882	1,039,828	81.42	237,160	51,326	185,834	108,873
Lehigh Valley R. R	1,435	15,946,863	2,013,893	19,855,401	3,121,190	6,378,459	202,597	11,431,418	434,828	21,650,863	108.87	—1,795,463	764,000	—2,560,480	—2,739,319
Long Island R. R	398	1,762,105	3,635,280	6,198,526	1,067,662	1,572,985	47,067	4,278,030	211,025	7,227,380	116.59	—1,028,854	411,860	—1,442,339	—1,509,926
Los Angeles & Salt Lake R. R	1,168	3,420,332	1,654,138	5,683,782	799,924	1,093,255	74,480	2,035,731	139,641	4,319,354	75.99	1,364,429	312,180	1,051,451	—29,096
Louisiana & Arkansas	302	1,131,775	201,407	1,407,618	229,438	185,606	18,188	456,926	30,825	919,589	65.32	488,029	65,036	422,884	451,476
Louisiana Ry. & Navigation Co	343	1,100,189	159,853	1,328,257	331,681	229,176	17,202	556,377	43,865	1,178,300	88.71	149,957	56,000	93,875	214,947
Louisiana Western	208	1,121,989	421,360	1,661,888	356,934	301,344	23,915	414,190	49,543	1,156,179	69.57	505,709	80,231	425,141	36,956
Louisville & Nashville R. R	5,040	27,047,911	7,673,109	38,577,083	6,274,307	10,148,873	674,799	16,689,865	871,229	34,861,231	90.36	3,715,852	1,153,665	2,559,499	—846,619
Louisville, Henderson & St. Louis Ry	199	320,475	104,760	475,753	122,018	50,819	8,251	138,856	17,091	337,036	70.84	138,717	14,430	124,284	—10,852
Maine Central R. R	1,216	3,699,301	1,330,294	5,616,445	1,252,768	1,514,063	41,140	3,428,667	168,522	6,406,434	114.07	—789,988	356,966	—1,147,100	—462,883
Md., Del. & Va. R. R	82	195,693	74,839	290,154	29,834	134,831	2,353	242,877	9,373	419,268	144.49	—129,113	8,000	—137,113	115,465
Michigan Central R. R	1,862	16,318,835	5,643,660	25,177,489	2,586,713	6,249,189	255,956	11,355,643	475,480	21,328,748	84.71	3,848,741	993,000	2,853,271	—1,078,064
Midland Valley	388	1,005,534	393,429	1,482,969	301,775	314,308	14,476	603,961	61,077	1,295,592	87.36	187,377	28,734	158,321	—35,403
Minn. & St. Louis R. R	1,646	3,727,673	887,139	5,058,285	603,782	1,339,049	62,414	2,552,332	135,243	4,694,467	92.81	363,818	237,665	125,512	620,705
Minn., St. Paul & Sault Ste. Marie	4,243	8,520,692	2,419,903	12,446,532	2,058,290	2,782,189	121,901	6,386,119	356,528	11,775,954	94.61	670,578	1,119,735	—450,213	—1,248,202
Mineral Range R. R. Co	101	209,590	1,233	217,982	52,222	75,023	969	120,698	4,089	253,002	116.06	—35,020	14,400	—49,420	—53,293
Minnesota & International	194	298,301	118,972	450,442	52,108	80,245	1,996	227,038	14,920	376,307	83.54	74,136	22,556	51,576	56,332
Mississippi Central	164	196,598	80,244	306,665	129,531	128,597	7,752	183,264	33,594	482,738	157.41	—176,073	14,615	—190,850	—128,293
Mo. & North Ark. R. R	365	381,306	168,714	614,607	213,298	127,782	10,846	299,723	32,098	683,747	111.24	—69,140	24,268	—93,442	166,236
Mo., Kan., & Tex. R. R	1,715	7,996,117	2,527,489	11,826,472	2,053,750	3,332,426	131,433	4,132,671	379,101	10,094,822	85.35	1,731,650	442,289	1,287,923	944,84·
Mo., Kans. & Tex. R. R. of Tex	1,767	5,393,281	2,811,108	9,240,717	2,107,918	1,894,290	104,118	5,272,322	318,149	9,803,977	106.10	—563,260	238,207	—803,069	—640,896
Mo., Okla. & Gulf Ry	329	637,975	86,573	766,415	180,224	234,252	8,066	413,940	36,952	874,311	114.07	—107,897	48,566	—156,629	143,562
Mo. Pac. R. R	7,299	24,936,764	6,325,272	35,534,089	6,795,470	7,769,884	460,502	14,670,295	954,580	30,830,309	107.79	4,703,780	980,581	3,709,271	3,420,143
Mobile & Ohio	1,053	4,718,501	716,246	5,975,337	962,862	1,832,208	116,750	2,734,332	182,264	5,831,902	97.58	143,434	242,303	—99,178	493,388
Monongahela Ry	108	977,153	91,531	1,099,099	391,173	228,770	2,227	457,189	26,314	1,105,675	100.60	—6,575	22,586	—29,161	—255,565
Monongahela Connecting R. R	7	.....	.....	990,497	93,740	148,579	2,237	442,108	25,013	711,677	71.85	278,820	11,877	266,943	354,018
Montour R. R	56	257,899	5,476	292,549	75,894	175,509	4,609	128,773	29,520	422,134	144.29	—129,585	9,471	—139,056	—28,984
Morgan's La. & Texas R. R	400	2,297,637	691,364	3,266,613	679,059	599,286	42,713	1,049,215	90,421	2,471,365	75.66	795,248	158,971	635,303	532,026
Nashville, Chatt. & St. Louis Ry	1,247	5,237,183	1,607,344	7,717,748	1,103,590	2,215,328	205,877	3,197,236	194,262	6,955,669	90.13	762,079	177,000	584,101	807,145
Nevada Northern Ry	166	544,703	38,223	604,987	113,203	112,109	3,703	165,411	17,399	412,369	68.16	192,618	33,069	159,549	40,441
New Jersey & New York	47	53,638	297,986	384,766	38,133	69,598	6,234	245,520	8,901	368,387	95.74	16,379	9,582	6,785	45,293
New Orleans Great Northern	284	619,455	167,127	822,333	164,483	182,584	13,132	352,744	36,799	731,398	89.05	90,935	46,336	44,541	28,885
New Orleans, Tex. & Mexico R. R	191	559,751	155,554	764,130	197,158	140,384	15,437	250,765	30,251	634,283	83.01	129,846	46,333	83,426	91,885
New York Central R. R	6,070	57,193,895	25,796,148	102,083,560	10,559,479	24,739,434	957,464	51,900,358	2,679,743	92,518,888	90.63	9,564,671	3,669,167	5,883,289	—1,070,447
New York, Chgo. & St. Louis	574	7,541,629	317,718	8,209,629	805,129	1,564,288	142,586	3,630,574	250,113	6,410,140	78.08	1,799,489	170,000	1,627,534	—186,933
New York, New Haven & Hartford	1,965	14,518,395	14,394,411	34,918,646	5,274,518	8,737,757	189,816	19,199,805	1,219,855	35,284,415	101.05	—365,769	1,356,000	—1,729,591	—1,595,402
New York, Ontario & Western	569	1,872,658	437,848	2,904,726	580,478	881,204	36,386	1,805,132	100,965	3,404,162	117.19	—499,437	98,183	—597,622	—301,908

REVENUES AND EXPENSES OF RAILWAYS

For Four Months of Calendar Year 1920—Continued

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
New York, Philadelphia & Norfolk	121	$1,756,402	$343,543	$2,329,321	$239,226	$682,657	$42,219	$1,416,278	$48,959	$2,482,534	106.58	—$153,214	$87,104	—$240,455	—$592,552
New York, Susquehanna & W.	135	820,007	240,047	1,226,422	178,956	319,336	10,648	1,019,540	35,030	1,563,509	127.48	—337,087	90,609	—430,687	—331,031
Newburgh & South Shore Ry.	7	.....	.....	515,293	57,554	127,543	.....	337,865	17,102	540,064	104.81	—24,772	30,675	—55,446	—128,462
Norfolk & Western	2,202	19,480,911	2,647,425	23,876,952	3,627,399	8,570,374	197,662	10,072,199	537,573	23,124,410	96.84	752,541	1,420,000	—669,538	—3,863,369
Norfolk & Southern	905	1,842,879	566,798	2,641,001	500,685	481,722	43,368	1,218,856	100,688	2,345,773	88.82	295,228	65,332	229,357	320,121
Northern Pacific	6,648	24,540,702	5,847,167	34,423,651	6,215,469	6,847,318	306,282	13,995,474	824,526	28,631,824	83.17	5,791,827	2,800,203	2,986,347	—1,680,450
Northwestern Pacific	538	1,068,402	692,090	2,042,053	478,327	299,606	20,038	946,954	59,405	1,813,737	88.81	228,316	102,365	125,491	182,699
Oregon Short Line	2,347	10,182,156	2,199,965	13,898,885	1,537,020	2,213,334	103,610	4,409,823	446,696	8,979,714	64.60	4,919,171	985,095	3,933,345	1,999,838
Oregon-Washington R. R. & Nav. Co.	2,221	7,311,375	2,095,325	10,589,245	1,482,237	1,728,086	123,764	4,345,693	448,415	8,252,514	77.93	2,336,730	621,717	714,738	1,077,758
Panhandle & Santa Fe	77	1,826,516	526,143	2,588,743	566,144	888,788	15,914	1,204,864	65,729	2,739,769	105.83	—151,026	81,745	—232,704	322,873
Pennsylvania R. R. Co	7,259	96,904,249	36,156,092	149,870,927	26,289,272	51,859,005	1,563,025	81,009,129	4,047,885	167,642,339	111.85	—17,771,412	5,659,025	—23,455,560	—25,394,258
Peoria & Pekin Union Ry	19	121,771	16,877	529,925	54,819	142,098	857	325,187	18,228	541,191	102.26	—11,266	38,000	—49,266	114,936
Pere Marquette Ry	2,230	7,515,524	1,820,840	10,869,327	1,411,152	2,852,840	158,082	5,808,770	364,827	10,639,344	97.88	229,984	240,596	—11,888	—1,341,128
Perkiomen R. R.	41	314,747	.....	377,605	31,326	16.6 0	58	160,349	1,298	209,774	55.55	167,831	160,589	7,242	16,006
Phila., Bethlehem & N. Eng. R. R. Co.	10	.....	.....	348,686	54,334	62,165	1,681	294,711	6,194	419,147	120.21	—70,460	4,120	—74,580	—104,180
Philadelphia & Reading Ry	1,126	21,825,184	3,334,979	26,894,558	2,615,928	8,578,900	186,174	13,891,558	651,313	26,007,641	96.70	886,917	551,195	333,995	1,854,257
Pittsburgh & Lake Erie R. R.	224	8,490,723	901,887	10,191,203	1,601,571	3,787,945	72,318	3,852,748	215,983	9,538,081	93.59	653,122	453,141	199,612	—772,987
Pittsburgh & Shawmut R. R.	103	483,219	20,710	508,341	93,988	123,663	5,763	195,601	19,914	438,931	86.34	69,410	441	68,968	170,989
Pittsburgh & West Virginia Ry	63	428,422	36,256	531,285	131,522	254,625	6,313	248,197	32,173	706,198	132 92	—174,912	56,724	—232,174	47,496
Pittsburgh, Shawmut & Northern R. R.	209	424,728	27,941	463,703	89,534	212,522	8,623	238,434	39,350	588,476	126.91	—124,773	7,553	—132,843	—21,313
Port Reading R. R.	21	463,539	.....	636,852	61,691	58,003	80	409,191	10,375	539,339	84.68	97,513	20,764	76,748	—164,9 7
Richmond, Fredericksburg & Potomac	116	1,666,046	1,278,450	3,800,267	303,222	587,144	29,869	1,481,647	93,389	2,528,828	66,54	1,271,439	114,169	1,157,211	—435,273
Rutland R. R.	415	903,818	416,115	1,650,218	269,604	406,105	19,940	914,691	55,607	1,672,328	101.33	—22,110	74,815	—96,935	24,233
St. Joseph & Grande Island	258	773,320	151,582	1,017,155	228,679	171,714	8,292	549,938	50,099	1,014,819	99.77	2,335,000	45,600	—43,301	71,407
St. L. S. W.	947	5,324,323	662,242	6,317,249	829,921	1,196,026	128,377	1,653,435	164,486	3,991,144	63.18	2,326,106	195,356	2,130,632	1,692,276
St. L. Transfer	6	.....	.....	450,613	35,569	85,651	741	227,957	9,841	359,759	79.83	90,854	765	90,089	62,852
St. Louis, Brownsville & Mexico	548	1,485,228	692,198	2,376,484	546,570	416,810	33,054	803,139	89,606	1,885,134	79.32	491,350	44,200	446,631	20,911
St. Louis Merchants' Bridge Terminal	9	.....	2,892	1,192,286	193,015	278,361	3,096	889,248	31,901	1,395,620	117.05	—203,334	36,191	—239,525	102,717
St. Louis-San Francisco Ry	4,757	19,133,639	7,208,537	28,029,005	4,122,134	6,254,047	237,484	11,522,722	825,762	22,915,265	81.75	5,113,739	902,233	4,206,333	1,289,735
St. Louis, San Francisco & Texas	134	450,837	73,773	535,063	116,406	103,425	7,140	323,006	24,415	574,392	107.35	—39,329	7,520	—46,859	18,577
San Antonio & Aransas Pass	736	921,548	343,111	1,453,783	506,496	417,094	25 227	284,652	73,010	1,805,950	124.22	—352,166	60,000	—412,435	—3,168
San Antonio, Uvalde & Gulf	317	252,990	167,845	446,328	199,390	91,902	8,505	225,019	19,559	544,377	121.96	—98,048	8,979	—107,116	—26,946
Seaboard Air Line	3,562	10,960,917	3,336,545	16,803,275	2,584,247	3,750,685	325,513	8,080,531	474,246	15,432,614	91.84	1,370,662	600,000	768,206	37,040
Southern Ry.	6,977	32,124,489	10,526,902	48,921,787	6,555,937	9,065,633	617,538	21,328,402	1,192,073	39,235,943	80.20	9,685,944	1,569,490	8,111,374	6,130,066
Alabama Great Southern	320	2,354,103	683,569	3,350,355	381,847	846,122	69,437	1,238,518	81,645	2,640,787	78.82	709,568	117,515	591,577	285,878
Cinn., New Orleans & Texas Pacific	338	4,428,251	1,218,037	6,242,972	724,103	1,687,618	108.991	2,283,759	145,439	5,004,602	80.16	1,238,370	194,005	1,043,328	226,781
Ga. Sou. & Florida	402	1,114,863	557,312	1,871,973	248,948	419,354	29,043	837,828	44,744	1,590,030	81.14	281,943	73,500	207,249	116,010
New Orleans & Northeastern	207	1,729,019	391,700	2,424,593	374,959	538,798	42,678	935.167	59,462	1,967,488	70.46	457,142	147,142	309,543	383,353
Northern Alabama	110	419,278	55,465	513,026	97,327	23.624	6,329	227,788	6,389	361,459	83.84	151,567	16,544	134,974	150,214
South Buffalo	11	171,570	.....	409,956	25,674	57,596	1,777	252,501	6,159	343,708	.....	66,248	14,320	51,928	—54,941
Southern Ry. in Mississippi	278	384,795	200,040	657,588	178,406	97,276	11,952	341,585	22,929	652,149	99.17	5,439	39,200	—33,778	27,431
Southern Pacific	7,056	32,871,748	16,075,701	55,947,470	9,358,104	12,200,181	517,544	21,893,002	1,315,502	46,575,842	83.24	9,371,629	2,994,796	6,365,261	1,992,353
Spokane International Ry	156	407,786	69,755	491,623	62,844	44,806	9,288	155,438	20,591	293,872	59.77	197,750	20,029	177,684	132,831
Spokane, Portland & Seattle Ry	538	1,835,351	561,106	2,637,187	460,602	329,318	23,566	895,614	89,514	1,820,459	69.03	816,727	325,602	490,782	263,960
Staten Island & Rapid Transit	23	290,068	272,413	616,411	115,215	147,287	4,835	400,576	37,621	705,534	114.45	— 89,124	60,000	—149,124	—162,436
Tennessee Central	292	690,264	171,477	950,624	169,459	213,054	18,459	446,161	39,982	887,099	93.31	63,525	21,585	41,931	210,236
Terminal R. R. of St. Louis	36	.....	8,481	1,380,026	254,040	287,340	3,972	636,249	31,072	1,228,161	88.99	151,865	144,822	7,037	148,249
Texarkana & Ft. Smith	93	464,852	86,859	619,427	82,862	67,092	3,444	171,493	16,992	343,875	55.51	275,552	55,602	219,928	195 781
Texas & Pacific	1,946	7,665,812	3,889,968	12,797,081	2,348,908	2,845,142	138,944	5,614,061	335,999	11,448,227	89.45	1,348,854	465,800	881,188	736,233
Toledo & Ohio Central	469	2,763,399	251,536	3,196,839	365,222	1,029,793	41,339	1,557,042	76,208	3,081,870	96.40	114,969	149,843	—34,900	257,224
Toledo, Peoria & Western	247	335,897	197,706	604,389	83.653	136,306	8,615	321,020	23,914	573,509	94.89	30,880	34,000	—3,120	58.691
Toledo, St. Louis & Western	454	2,840,924	124,262	3,179,844	455,115	642,139	33,397	1,377,521	46,681	2,554.789	80.34	625,054	124,000	500,759	254.770
Trinity & Brazos Valley	368	485,960	76,420	603,381	297,186	188,837	5,998	290,229	33,908	816,158	135.26	—212,777	33,980	—246.851	—32,963
Ulster & Delaware	128	159,284	60,354	334,320	65,754	81,231	6,820	233,675	25,607	415,061	124.15	—80,740	20,000	—100,738	15.605
Union R. R. (of Pennsylvania)	40	.....	.....	2,564,693	290,069	766,828	1,095	1,761,361	31,109	2,850,461	111.14	—285,768	28,912	—314,680	—526,440
Union Pacific R. R.	3,614	25,362,861	6,136,779	36,995,016	4,463,406	7,163,582	228,324	11,413,473	1,091,509	25,244,526	68.23	11,750,490	1,522,371	10,225,497	1,169,401
Utah Ry.	98	598,511	2,258	602,563	51,530	113,751	768	142,770	9,764	318,584	52.87	283,980	18,223	265,757	138,244
Vicksburg, Shreveport & Pacific	171	940,046	368,930	1,443,332	167,663	244,972	25,038	552,739	41,455	1,046,516	72.50	396,816	51,161	345,553	224,721
Virginian	523	4,110,007	231,103	4,848,589	526,494	1,037,115	22,734	1,973,772	95,523	3,655,848	75.41	1,192,741	214,123	978,611	1,113,776
Wabash	2,473	11.358.967	3,051.804	16,457.826	2.836.905	4,685,653	281,821	8,774,733	550,858	17,235,251	118.26	—777,424	506,495	—1,285,813	—1,683,680
West Jersey & Seashore	361	1,022,500	1,843,497	3,132,199	948,316	833,997	40,700	2,086,422	92,979	4,029,604	128.65	—897,405	204,331	—1,101,842	545,750
Western Maryland	743	4,695,379	310,760	5,426,568	968,451	2,049,368	145,029	2,181,100	175,457	5,570,475	102.65	—143,907	186,400	—330,307	163.742
Western Pacific	1,031	3,283,904	602.269	4,128,261	738,768	753,355	92,265	1,415,542	120,319	3,203,663	77.60	924,598	234,513	689,810	755,232
Western Ry. of Ala	133	264,186	135.639	443,129	61,946	90,132	9,992	157,247	17,133	341,476	77.06	101.653	16,450	85,203	—87,938
Wheeling & Lake Erie	511	3,703,383	237,264	4,326,390	606,706	1,170,973	46,583	1,967,831	109.386	3,914,526	90.48	411,864	259,800	152,062	534,508
Wichita Falls & N. W	328	604,213	188.258	858.664	222.777	123,837	4,684	453.056	55.205	859.557	100.10	—893	44,131	45,290	67,122
Wichita Valley R. R	256	400,058	154,776	596,924	114.405	34.901	281	250,965	77.048	407.516	68.26	189,408	21,586	167.791	170,751
Yazoo & Mississippi Valley	1,381	6,825,331	1,964,512	9,452,835	1,864,957	2,213,878	91,081	3,597,483	230,477	8,015,348	84.79	1,437,487	314,633	1,119,599	140,145

Traffic News

Sixty-five thousand is the number of passengers from Philadelphia carried to the seashore by the Philadelphia & Reading in three days, July 3, 4 and 5.

The return of 2,000 freight cars and 120 passenger cars to the Mexican National Railroads by military chiefs in various parts of the republic has been reported, following the order of the Secretary of War and Marine that the military authorities release rolling stock belonging to the Mexican National Railroad in order to aid in better service.

The Missouri Public Service Commission has authorized increases in Pullman rates in Missouri on the Chicago, Burlington & Quincy, the St. Louis Southwestern, the St. Louis-San Francisco and the Wabash, effective July 1. The increases allowed are 20 per cent except as to minimum rates, which are to be advanced from 75 cents to $2 for berths and 25 to 59 cents for seats.

Hearing on Coal-Car Distribution

Acting on numerous informal complaints, the Interstate Commerce Commission has announced a hearing to be held before Division 5 in Washington, on Thursday, July 8, "on the existing rules, regulations and practices of the railroads as to the supply, exchange, interchange and return of open top equipment within the territory east of the Mississippi river to see if any change or addition shall be made in such regulations, etc., or in Service Order No. 7 of the commission relative thereto."

The chief complaints were from the sand, gravel, cement and similar interests regarding the priority order giving coal the preference in the use of open-top cars.

Railway Officers—Traffic

The Canadian National, announcing the consolidation of freight and passenger offices consequent on the merging of the Grand Trunk and the Canadian Northern, gives the addresses of twelve offices at each of which the business of the two former systems will be transacted by a single organization, with the following agents: Montreal, M. O. Dafoe, city passenger agent, and H. A. Carson, city freight agent; Toronto, W. J. Moffatt, city passenger agent; Ottawa, P. M. Buttler, general agent, and R. G. Reece, city passenger agent; E. J. Hilliard, division freight agent; Hamilton, Ont., James Anderson, city passenger agent, and R. J. S. Weatherston, division freight agent; Quebec, S. J. Nestor, city passenger agent; New York, A. B. Chown, general agent of the passenger department; Boston, C. J. Pierce, general agent of the freight department, and W. R. Eastman, general agent of the passenger department; Buffalo, N. Y., Ira W. Gantt, assistant general freight agent.

Crop Movement Presents Problems

The railroads are facing a big problem this year in connection with the handling of the crops. The reports of the Department of Agriculture forecast a good crop this year, while considerably smaller than that of the last two years, but they also show that an unusually large percentage of the last year's crop was still on the farm on March 1. Railroad reports show considerable progress made during the last few weeks in reducing the accumulations in storage at the principal markets and a considerable increase in grain loading on the lines in the grain territory, but the roads are entering upon the season for handling the new crops without some of the preparations for it that were made last year. A year ago, following several months during which there was a heavy surplus of cars, approximately 27,000 grain cars were being held in storage in the Central Western region, 27,000 in the Southwestern region and 4,000 in the Northwestern region, awaiting the grain movement. This was made possible by the fact that the Eastern roads had been clogged with idle cars and were glad to have the Western lines take them off their hands. This year the unusual demand for cars of all kinds and the slowing up of movement incident to the strike and the general labor situation, has made it impossible to store cars in the west and it has been necessary to force box cars into the grain territory by arbitrary car relocation orders issued by the Interstate Commerce Commission and the Commission on Car Service ordering the movement of empty cars westward.

Service Order No. 3, issued by the Interstate Commerce Commission, directed the movement of approximately 20,000 serviceable empty box cars of western road ownership from eastern to western railroads during a period of 30 days beginning May 25. This order has been practically completed. On its expiration the Commission on Car Service issued additional similar orders for approximately 28,000 box cars on a 30-day schedule, or 935 cars a day, and recently it has placed additional orders covering 9,000 cars, or 300 cars a day, so that 1,235 box cars a day are now on their way to the Western grain loading roads. Particularly heavy movements have been ordered to the Union Pacific, Santa Fe, Rock Island, Great Northern and Northern Pacific.

Coal Production

Responding to the service orders directing complete priority for coal mines in the use of open-top cars, the production of soft coal during the week ended June 26 increased 377,000 tons, or 3.7 per cent, according to the weekly bulletin of the United States Geological Survey. The total output, including lignite and coal made into coke at the mines, is estimated at 10,454,000 net tons, as against 10,077,000 tons during the preceding week, and 10,355,000 tons in the week of June 12. The increase was effected in spite of a recurrence of the switchmen's strike on roads serving central Pennsylvania and the Somerset, Cumberland-Piedmont and Fairmont fields.

Production during the first 152 working days of the last four years has been as follows:

1917	269,229,000	1919	210,640,000
1918	277,877,000	1920	251,953,000

The year 1920 is thus 17,250,000 tons behind 1917, and nearly 26,000,000 tons behind 1918, but is 41,300,000 tons ahead of 1919. Shipments of anthracite originated by the nine principal carriers of hard coal amounted to 35,430 cars during the week ended June 26. This was an increase of 324 cars over the preceding week's loading.

In the second week of operation of the pool reconstituted by the Interstate Commerce Commission Service Order No. 5, lake shipments showed an increase of 90,000 tons over the first week, but were still 350,000 tons short of the rate maintained at this time last year. The week's dumpings amounted to 571,692 net tons of cargo coal and 24,388 tons of vessel fuel, a total of 596,080 tons. The total dumpings in the corresponding week of 1919 were 995,000 tons. The tonnage for the season to date now amounts to 3,519,000 tons. In the corresponding period of 1918 it was 7,699,000 tons, and in 1919, 9,130,000 tons. The present season is therefore, in round numbers, 4,180,000 tons behind 1918 and 5,600,000 tons behind 1919.

At the request of the United States Bituminous Coal Commission, and largely with the help of funds provided by the commission, the Geological Survey conducted a rapid canvass of stocks of coal in the hands of representative consumers. Inquiries were sent out to a selected list of consumers, most of them large, including by-product coke ovens, iron and steel plants, other industrial consumers, coal-gas plants, electric public utilities, and retail coal dealers well scattered over the entire country. Because of the limited time available it was impossible to secure figures from all of the ninety-odd commercial consumers in the country. By addressing a limited list of about 5,500 plants it has been possible to practically complete the survey within a month. While a number of the consumers addressed have not yet furnished returns, the proportion received has been sufficient to justify the publication of preliminary figures for the gas and electric utilities and for industrial consumers other than steel and by-product plants.

Foreign Railway News

Electrification of Swedish State Railroads

The Swedish parliament, writes Vice-Consul Orsen N. Nielsen to Commerce Reports, from Goteborg under date of May 28, has now definitely approved of the electrification of the State Railways between Stockholm and Goteborg and has appropriated for the work 23,000,000 crowns (normally $6,164,000). It is expected that the conversion from steam to electrical operation will be completed by 1925.

Deficit on Italian Railways

LONDON.

A news item from the Times Trade Supplement states that the position of the Italian State railways is very serious. According to a recent report there is estimated for the year 1919-1920 a deficit of 1,000,000,000 lire ($200,000,000). The annual charge arising from the compensation due to private companies conducting secondary lines and tramways amount to another 500,000,000 lire ($100,000,000). Wages absorb the whole income, the average wage of the railwaymen now being about 8,000 lire ($1,600) per annum. To the increased expenditure for higher wages must be added the increase in the cost of fuel. Tariffs have been doubled and in certain cases trebled.

England's Exports of Railway Materials

LONDON.

According to the Board of Trade returns, the exports of railway material for the four months ended April 30, 1920, as against the corresponding figures for the same period of 1919, are as follows:

	Four months ended April 20, 1920	Four months ended April 30, 1919
Locomotives	£1,287,245	£219,017
Rails	522,531	252,268
Carriages	398,632	83,729
Wagons	1,794,741	242,571
Wheels and axles	611,430	97,200
Tires and axles	406,397	296,002
Chairs and metal sleepers	143,738	33.536
Miscellaneous permanent way	669,443	215,730
Total permanent way	2,396,391	516,150

The weight of rails exported for the four months ended April 30, 1920, was 29,747 tons, as against 13,996 tons for the same period of the year 1919, and of "chairs and metal sleepers" 6,783 tons for the four months ended April 30, 1920, as against 2,011 tons for the same period of the year 1919. During April alone locomotives to the named value were sent to the following countries:

Argentine	£93,920
India	185,008
Straits Settlements	31,500

Switzerland Will Raise and Spend $25,000,000 in U. S. for Electrification

A syndicate of bankers, including Lee, Higginson & Co., the Guaranty Trust Company, A. Iselin & Co., the National City Bank and others, on Tuesday announced the offering of $25,000,000 of Government of Switzerland 20-year 8 per cent bonds at par. The entire proceeds of this loan, according to the announcement, are to be spent in the United States and "is part of a program," to quote the announcement, "for the gradual electrification of the government railway systems of Switzerland."

It is explained that it was found advisable by the Swiss government to create New York funds by means of the loan rather than to attempt to pay for purchases in this country through the normal operations of exchange. Regarding the new issue, a circular issued by the syndicate gives this information:

"This loan is part of a program for the gradual electrification of the Government railway system of Switzerland. The country has estimated water power resources of 2,700,000 horse power. The progressive utilization of this water power will effect large economies by substituting hydro-electric power for fuel which Switzerland now has to buy at high prices."

France to Pool All Net Receipts from Railways

LONDON.

The French President on May 18 signed a bill for the reorganization of the railways. The French railway system is based on minimum profits being guaranteed by the State. War conditions have caused this to be a great drain on the country and the lines are now to be co-ordinated so as to form a great national system. For the present, the railways are to be run under their existing managements, but subject to a council on which the companies, the men, and the users of the railways will be represented. All the net receipts are to be pooled. Over and above the sums which are to be guaranteed the companies there will be paid premiums to those which do well in the amount and operation of traffic; two-thirds of these premiums are to be divided among the employees.

Railway Notes from China

May 18, 1920.

The Peking Suiyuan line is making extensive additions to the trackage in the yard at the Peking Hsichimen station. Two wings have been added to the station building, more than doubling its capacity. A new round house has been put into commission, and new quarters for the shop and runnning staff have been opened in connection.

* * *

On May 17 the second engineering conference under the auspices of the Railway Technics Commission began its sessions. The first session, held in February, was preliminary only, and dealt with questions of program. The subjects which were chosen for consideration at this conference, and which are now under discussion, are:

1. Standard specification for steel bridges.
2. Standard cross section of railway.
3. Permanent way.
4. Standard construction gage.
5. Switches and crossings.
6. Super-elevation.
7. Transition of curves.
8. Vertical curves, at changes of grade.
9. Compensation of curves on grades.
10. Lay-out at stations.

* * *

The colony of foreign advisers at the Ministry of Communications continues to grow. One of the most picturesque additions is Gen. Horvath, formerly director of the Chinese Eastern. With the taking over of ostensible control of that line by the Chinese, the general was appointed adviser to the Ministry and is now in Peking. That the explanation is not just what it appears to be on the surface is attested by the fact that for some weeks it was given out by the press of a "certain country" that Gen. Horvath would take up his residence in Tsing Tau.

The other addition to the advisory ranks is T. Ohmra, formerly connected with the Technical Commission on the Trans-Siberian line. It appears that the Japanese Minister was not satisfied that Japanese prestige was properly acknowledged by the presence of Baron S. Hirai among the advisers to the commission on Railway Technics. Baron Hirai has been an adviser, without definite assignment, ever since the days of Sun Yet Sen in 1912. Since new advisers were being employed at this time from France, England and America, Japan must also be recognized, by an additional appointment. Hence Mr. Ohmra.

* * *

The financial difficulties of the Government have become so acute that another cabinet re-organization is under way. The Anfu Club, the dominant political group, is urging Tsao Ju-lin for Minister of Communications. As reported in these notes, Tsao was the Minister of Communications, who, about a year ago, was set upon by students, who burned his house, and, in the end, compelled his resignation. He figures as one of the three "traitors" who negotiated the secret treaties of September, 1918, with reference to Shantung. However, the proposal of Tsao by the Aufu Club is probably merely a manœuvre. Having centered the opposition on Tsao, they will

yield, providing another of their number is appointed; whereas, if they had proposed their real choice in the first place, the natural party opposition would force a compromise of some other sort. In this way they expect to obtain complete control of the Cabinet.

* * *

The plan to link up the mineral resources of Shansi—the Pennsylvania of China—with Tsing Tau and Japan by means of the Shih Chia Chuang-Tehchow line of railway was noted at length in the last issue of these notes. Another link in the chain of evidence on the point has now been discovered. Those "in the know" say that the Chinese Government has mortgaged the Ching Hsing mines—just west of Shih Chia Chuang, on the Cheng Tai railway—to Japanese private capitalists, probably the Okura interests. It is known that these interests have been picking up small private holdings in the vicinity of these mines for the past year. The Ching Hsing mines were formerly a Chinese-German enterprise of which the notorious Von Hannecken was the director. When war was declared by China against Germany these German interests were confiscated by the government, and it is this interest which is now mortgaged. If the report be true, the rumored redemption of the Cheng Tai line from the French, the subscription to the domestic loan by Japanese through Chinese "dummies," and the change of terminus for the connecting line from Tsangchow, near Tientsin, to Tehchow, near Tsinan, is all "one piece of cloth."

* * *

The rumor is persistent that an attempt is to be made by Liang Shih Yi to raise domestic funds for the redemption of the British loan on the Peking Mukden line. The rate of exchange is now so favorable that only six or seven million dollars would be necessary, and this would get rid of the quasi-control now exercised by the British. The "joker" in this proposition is that there would still remain the Japanese second mortgage, and the way would then be open for the Japanese advance from Mukden to Peking. More probably, the immediate object is to get away from a certain provision in the British contract which gives the British administration the right of construction of all branch lines and of all parallel lines within eighty miles of the Peking Mukden line. However, almost simultaneous reports of second mortgages on the Pu-Sin route and the Lung-Hai line give rise to the suspicion that Liang Shih Yi believes that the time has now arrived when British and French interest should be more actively aroused against the Japanese, and that he is taking this indirect method of doing it.

* * *

The departure of Thomas W. Lamont and party on May 1 has not resulted in any loss of interest in the Consortium. It is no secret that Government officials are bitterly disappointed at not being able to "touch" Mr. Lamont for a substantial loan. This feeling was both concealed and revealed, depending upon one's understanding of the situation, by the taunting remarks which were passed concerning Mr. Lamont's "failure" in China. That was given a sudden hush by the news of the actual formation of the Consortium, which arrived while Mr. Lamont was still en route to Japan. The reservations of certain branches of the South Manchurian railway from the scope of the Consortium is rather serious, and furnishes a handle by which the Chinese opposition to the Consortium can take hold. Nor is it likely that the militaristic party in Japan will cease its effort to embarrass the Consortium through Chinese mediums. This party has given abundant evidence of its independence of the civil government of Japan in Siberian affairs. So it must not be thought for a moment that now the Far Eastern question is settled. However, the Manchurian reservations are not so serious but what a vigorous policy of administration on the Chinese Government railways, harmonious working with the Consortium on the part of Chinese authorities, and a fair degree of support from abroad on the Shantung question, will permit the Chinese to work out their own destiny.

* * *

H. Van Alstyne, vice-president of the American Locomotive Company, is staying in Peking for some months. F. M. Titus, the American Locomotive Company's representative during the past four years will soon return to the states.

Equipment and Supplies

Locomotives

THE MINNEAPOLIS & ST. LOUIS has ordered 5 Pacific type locomotives from the American Locomotive Company.

THE BANGOR & AROOSTOOK has ordered 6 Consolidation type locomotives from the American Locomotive Company.

THE NETHERLANDS GOVERNMENT, COLONIAL DEPARTMENT, is inquiring for 82 locomotives for use on the State Railways of Java.

MITSUI & CO., 65 Broadway, New York, is inquiring for 3 Pacific type locomotives, to have 20 in. by 26 in. cylinders, for use on the Shantung Railway.

Freight Cars

THE CHICAGO & NORTH WESTERN is inquiring for 250 refrigerator cars.

THE PENNSYLVANIA RAILROAD is asking prices on a number of freight cars.

THE MINERAL POINT ZINC COMPANY, Chicago, is inquiring for 25 tank cars.

THE NATIONAL TUBE COMPANY, Pittsburgh, Pa., is inquiring for 300, 70-ton hopper cars.

THE CENTRAL OF GEORGIA is inquiring for 500 ventilated box cars and 300 gondola cars.

THE CHICAGO, MILWAUKEE & ST. PAUL is inquiring for 1,000 box and 2,000 gondola cars.

THE ILLINOIS CENTRAL has ordered 1,000 refrigerator cars from the Pullman Co., Chicago, Ill.

THE UNIVERSAL PORTLAND CEMENT COMPANY, Chicago, is inquiring for 300, 50-ton box cars.

THE ELGIN, JOLIET & EASTERN is inquiring for 500 to 1,000 70-ton gondola and 1,500 hopper cars.

THE FRUIT GROWERS' EXPRESS, Washington, D. C., has renewed its inquiry for 1,000 refrigerator cars.

THE DONNER STEEL COMPANY, Buffalo, N. Y., is considering the purchase of additional hopper cars.

THE LEHIGH VALLEY is having repairs made to 200 freight cars at the shops of the Buffalo Steel Car Company, Buffalo, N. Y.

THE ZAYAS-ABREU COMMERCIAL COMPANY, Havana, Cuba, has ordered two locomotives from the American Locomotive Company.

THE STRUTHERS FURNACE COMPANY, Cleveland, Ohio, has ordered 20 70-ton hopper cars from the Pressed Steel Car Company.

MITSUI & CO., 65 Broadway, New York, is inquiring for 400, 40-ton capacity gondola cars for use on the Tientsin-Pukow Railway, China.

THE WEST INDIA SUGAR FINANCE CORPORATION, 129 Front street, New York, has ordered 45 flat cars from the American Car & Foundry Company.

THE WHITAKER-GLESSNER COMPANY, Wheeling, W. Va., has ordered 140, 55-ton hopper cars and 50 gondola cars from the Pressed Steel Car Company.

THE CUBAN-AMERICAN SUGAR COMPANY, New York, has ordered 4, 3,000-gal. car tanks and 3, 4,500-gal. car tanks from the General American Tank Car Corporation.

THE RAILWAY EQUIPMENT COMPANY, Second and Stark streets, Portland, Ore., is in the market for 10 second-hand flat cars, 36 or 40 ft. long, of 60,000 lb. capacity or over.

THE ERIE RAILROAD is having repairs made to freight cars in outside shops, as follows: Greenville Steel Car Company, 2,000 coal cars; American Car & Foundry Company, 900 composite gondolas; Western Steel Car & Foundry Company, 1,000 composite gondolas; Illinois Car Company, 500 coal cars; Standard Steel Car Company, 1,000 coal cars to be equipped with new bodies, also 1,000 box cars to be equipped with new bodies. This makes a total of 6,400 cars, of which 1,457 have been repaired and delivered up to July 1.

Passenger Cars

THE MANILA RAILROAD is inquiring for 25 cars for passenger train equipment.

THE PENNSYLVANIA RAILROAD is asking prices on a number of passenger train cars.

THE TEXAS & PACIFIC will be in the market soon for cars for passenger train equipment.

THE PITTSBURGH & SHAWMUT has ordered 2 passenger coaches and 2 passenger and baggage cars from the American Car & Foundry Company.

THE VIRGINIAN RAILWAY, reported in the *Railway Age* of April 30 as being in the market for 1 club car, 10 passenger coaches and 4 mail and baggage cars, has ordered this equipment from the Pullman Company.

Iron and Steel

THE SOROCABANA RAILWAY (Brazil) is inquiring for 4,000 tons of 75-lb. rail and accessories. There will be 110,000 lineal meters of rail, 10 meters each long; also 21,100 splice bars, 48,000 nuts, 380,000 spikes and 18 switches.

THE NETHERLANDS GOVERNMENT, COLONIAL DEPARTMENT, has divided an order among the Consolidated Steel Company, the LaBelle Iron Works and the Inland Steel Company for 2,000 tons of steel plates, sheets and bars for use in the Dutch East Indies.

Miscellaneous

THE NETHERLANDS GOVERNMENT, COLONIAL DEPARTMENT, is inquiring for all the material for 19 tugboats for export to Holland.

Signaling

THE GUANTANAMO RAILROAD of Cuba has awarded a contract to the A. G. A. Railway Light & Signal Company, Inc., Elizabeth, N. J., for eight grade crossing signals to be installed in the city of Guantanamo, Cuba.

THE CANADIAN NATIONAL RAILWAYS have placed an order with the Union Switch & Signal Company, Swissvale, Pa., for a 16-lever Saxby & Farmer interlocking machine and other mechanical fittings to be installed by railroad forces at Neepawa, Ontario.

THE CANADIAN PACIFIC has placed an order with the Union Switch & Signal Company, Swissvale, Pa., for a 48-lever Saxby & Farmer interlocking machine together with other necessary material for rebuilding and enlarging the mechanical interlocking plant at Hamilton Junction, Ontario.

A CONTINUOUS GRADE CROSSING.—Much indignation is felt at the killing of 187 persons in New York state by vehicles during the month of June, an unusually high record. But there seems to be no agreement as to what more can be done to protect life. The trouble is that every highway has come to be one continuous grade crossing, and anyone who watches the chances that are constantly being taken is likely to wonder that the casualties are not even more numerous.—*Springfield Republican.*

Supply Trade News

Clark T. Dickerman, sales agent for the **American Car & Foundry Company,** with headquarters at New York, has been transferred to the Chicago office.

G. M. Calmback, welding supervisor of the Kansas City Southern, has been appointed welding advisory engineer of the Geist Manufacturing Company, Atlantic City, N. J.

T. E. Spence has left the service of the Vacuum Oil Company, New York, to become manager of the recently established district sales office of the **Reading Iron Company,** Reading, Pa., at 161 Devonshire street, Boston, Mass.

"Blawnox" is the new name conferred upon the town of Hoboken, Pa., the home of the Blaw-Knox Company, following the granting of a petition signed by the people of the town asking the postoffice name to be changed to Blawnox.

Sidney G. Johnson has resigned as vice-president and director of the General Railway Signal Company, Rochester, N. Y., which position he has occupied for the last six years, to become president of the **Signal Service & Supply Corporation,** New York.

Dewitt Clinton Grove, vice-president of the Technical Publicity Association, has been appointed advertising manager of the **Blaw-Knox Company,** Pittsburgh, Pa., succeeding **George Land,** who resigned on July 1 to become head of the Technical Publicity Company, Pittsburgh.

B. M. Jones & Co., Inc., New York, distributors for Double Mushet high speed steel and Taylor's Best Yorkshire iron, announce that they are now being represented in the southeastern territory by the W. S. Murrian Company, 605 Fourth street, Knoxville, Tenn. W. S. Murrian for a number of years was connected with the mechanical department of the Southern Railway, but during the war period he was associated with the United States Railroad Administration, Railway Board of Adjustment No. 2. His son, John H. Murrian, has recently been discharged from the army, having served with the American Overseas Air Force and being the possessor of three distinguished foreign decorations.

W. S. Murrian

F. V. Green, who left the service of the Westinghouse Air Brake Company some time ago to become associated with the Baldwin Locomotive Works, has now opened his office in the Standard Bank building, Johannesburg, South Africa. Mr. Green is export manager for the Baldwin Locomotive Works, in charge of South African territory.

F. C. Lavarack, vice-president of the **Signal Accessories Company,** Utica, N. Y., has resigned, effective July 15. He is consolidating a number of his interests in the railroad field and has organized a new company under the name of the Railroad Accessories Corporation, of which he is president, with offices at 30 Church street, New York. Mr. Lavarack is also president of the Duplex Channel Pin Company, New York, and of the Signal Construction Company, Albany, N. Y.

The Air Reduction Sales Company has just completed the construction of a new acetylene plant at 560 Broadway, Gloucester, N. J. The buildings making up this new unit in the Airco service system consist of a gas house, carbide storage building and a generator house. The gas house is the main building of the plant and contains the compressors and filling lines. It has a brick addition which is used as a locker room and heating plant. All the buildings are built of fabricated steel and are supported on concrete foundations and have concrete floors.

W. R. Stinemetz, who is manager of the heavy traction section of the **Westinghouse Electric & Manufacturing Company,** East Pittsburgh, Pa., as was announced in our issue of June 25, graduated from Lehigh University in 1893, as electrical engineer. In 1897 he became associated with the Westinghouse Electric & Manufacturing Company in the engineering school, leaving in 1899, to become electrical assistant to chief engineer of the Third Avenue Railroad Company, New York. In 1900 Mr. Stinemetz went to Mexico as electrical engineer for Braniff & Co. and after spending some time there he became engaged in making some special studies of motor flashing on the lines of the Boston Elevated Railway Company. During 1903 and 1904 he was engaged in construction work in the installation of motors in the Pittsburgh Glass Company's plant. In 1905 he was sent to Atlanta, Ga., to superintend the installation of one of the early single-phase roads. The following year he was sent to Europe as a consultant with Westinghouse European engineers in Italy and France on single-phase railway installations. On his return in 1909 he was placed in charge of installations for the Westinghouse Company of the United States Government power house and substation for the Capitol building and grounds, Washington, D. C. In 1912 he became associated with the railway sales department.

W. R. Stinemetz

L. E. Summers, on June 1, was appointed works manager of the **Keller Pneumatic Tool Company's** factory at Grand Haven, Mich. Mr. Summers is one of the pioneers in the mechanical department of the pneumatic tool industry, having started his career in 1894 with Joseph Boyer, St. Louis. He then went to the Boyer plant of the Chicago Pneumatic Tool Company, at Detroit, where he was assistant manager for nine years, and then was works manager for eight years. He resigned in 1918, since which time he has been employed by various interests on the Pacific Coast, until he joined the Keller organization on June 1 of this year.

Trade Publications

DUMP CARS.—The Western Wheeled Scraper Company, Aurora, Ill., has issued catalogue No. 51, an 80-page book describing the construction and use of its dump cars, spreaders and other construction equipment. The book is profusely illustrated with photographs of the equipment in service.

INSULATING MATERIALS.—Miniature Catalogue No. 5-A-1, listing insulating materials and supplies, has just been issued by the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. Included in the list of products described are: mica, Micarta and Bakelite Micarta plates and tubing, treated and untreated cloths and papers, insulating and soldering compounds, insulating oils and tapes.

Financial and Construction

Railway Financial News

KANSAS CITY, MEXICO & ORIENT.—The Interstate Commerce Commission, Division 4, has denied an application of this company, its receiver, William T. Kemper, and of the Kansas City, Mexico & Orient of Texas, for a loan from the revolving fund of $3,500,000, for the purpose of paying outstanding receivers' certificates to the amount of $1,420,000, to enable the companies to meet fixed charges and operating expenses after September 1, and to complete the laying of track on an extension to Sonora, Texas, 61 miles. The report states that the commission is unable, upon the record, to find that the proposed loan is necessary to enable the applicant properly to meet the transportation needs of the public or that the prospective earning power and the character and value of the securities offered are such as to furnish reasonable assurance of ability to repay the loan within the time fixed. The application stated that it would be impossible for these railroads to continue in operation after September 1 unless the requested loan is granted and representatives of various communities along the lines supported the application for that reason. The commission says, however, that the line cannot be abandoned without its approval and that it is evident from the testimony that the Orient does not require a loan from the United States to enable it properly to meet the transportation needs of the public. With the exception of the provision for the extension and a comparatively small allowance for additions and betterments, included in a supplemental but not in the original application, the report says, the companies have clearly had in mind private advantage rather than the transportation needs of the public. The application is particularly for the purpose of clearing the title to the property, which would be a great benefit to security-holders who have refused to advance any further funds for the protection of the property of their investment, but it is not apparent that the failure to do this should or would prevent the proper service to the public which the roads are now capable of giving. Failure to discharge the receiver's certificates might result in a receiver's sale, but, the report says, such a sale might well prove a benefit to the operation of the property "by scaling down the present top-heavy capitalization."

HOCKING VALLEY.—See editorial elsewhere in this issue.

LAKE TAHOE.—This company was authorized by the Railroad Commission of the State of California on June 25, to increase the interest rates on $50,000 of notes, which it has outstanding, from 6 per cent to 6½ per cent per annum upon a showing by the company that such notes would either have to be paid or increased interest paid thereon.

SAN DIEGO & ARIZONA.—This company was authorized on June 22 to sell to the Southern Pacific, at par value, $1,000,000 six per cent bonds for the purpose of reimbursing the Southern Pacific for money previously advanced.

ST. LOUIS-SAN FRANCISCO.—A banking syndicate composed of Hemphill, Noyes & Co., Colgate, Parker & Co., A. B. Leach & Co., Low, Dixon & Co., West & Co., Hitt, Farwell & Park and others has been formed to take over from Speyer & Co. the block of St. Louis-San Francisco 6 per cent income bonds which Speyer & Co., in company with the Guaranty Trust Company, recently purchased from the French Government. These bonds will be offered to the public at the day-to-day price established on the Stock Exchange, where they are already listed. The block of bonds, which is said to represent about $5,000,000 par value, constitutes practically all of the bonds of this description originally received by French investors in exchange for the St. Louis-San Francisco general lien 5 per cent bonds at the time of the reorganization of the property in 1916.

Railway Construction

ST. LOUIS-SAN FRANCISCO.—This company has awarded the contract for the construction of a six-mile cutoff near Lebanon, Mo., to Scott & White, of St. Louis, Mo.

ANNUAL REPORT

The Hocking Valley Railway Company—Twenty-first Annual Report

COLUMBUS, OHIO, May 20, 1920.

To the Stockholders:

The Twenty-first Annual Report of the Board of Directors, for the fiscal year ended December 31, 1919, is herewith submitted.

The average mileage operated during the year was 350.2 miles, an increase compared with the previous year of .5 miles. The mileage at the end of the year was 350.2 miles. See schedule on page 12.

RESULTS FOR THE YEAR

*Standard Return	$2,637,167.48
†General Expenses (Corporate)	73,766.90
(Increase $5,259.33 or 7.68%.)	
	$2,563,400.58
War Taxes	108,000.00
(Increase $93,800.00 or 660.56%.)	
Remainder	$2,455,400.58
(Decrease $99,059.33 or 3.88%.)	
Miscellaneous Income	201,077.36
(Decrease $81,409.05 or 28.82%.)	
	$2,656,477.94
Rentals and Other Payments	166,119.36
(Decrease $39,083.12 or 19.05%.)	
Income for the year available for interest	$2,490,358.58
(Decrease $141,385.26 or 5.37%.)	
Interest (58.65% of amount available)	1,460,490.57
(Increase $188,576.07 or 14.83%.)	
Net Income for the year	$1,029,868.01
(Decrease $329,961.33 or 24.26%.)	
Dividends paid during the year:	
Two dividends of 2% each, aggregating	439,980.00
Balance, devoted to improvement of physical and other assets	$589,888.01

*See note below.
†See note below.

RETURN ON PROPERTY

The following table shows the amount of return to your Company, from transportation operations only, upon its investment in road and equipment at the termination of each year of the five year period ended December 31, 1919; the road having been operated in 1918 and 1919 by the United States Railroad Administration, the Standard Return has been used for those years in lieu of the operating and other items corresponding therewith:

YEAR ENDED DECEMBER 31	PROPERTY INVESTMENT	TOTAL OPERATING INCOME (including hire of equipment and other items)	PER CENT OF RETURN
1919	$49,036,318.18	$2,425,691.11	4.95
1918	48,057,539.03	2,598,474.64	5.41
1917	46,237,480.24	3,060,174.97	6.62
1916	45,198,144.03	3,052,123.37	6.75
1915	44,802,665.64	2,041,149.36	4.56
Average	$46,666,429.42	$2,635,552.69	5.65

FINANCIAL

The changes in funded debt shown by balance sheet of December 31, 1919, as compared with December 31, 1918, consisted in the payment of $180,000 on equipment trusts, in the payment of $5,000,000 face amount Six Per Cent Coupon Gold Notes maturing November 1, 1918, but extended to March 1, 1919, and in the issue and sale of $7,500,000 face amount Five-Year Six Per Cent Secured Gold Notes due March 1, 1924. There were also issued $9,783,000 face amount 6% General Mortgage Bonds maturing January 1, 1949, of which $9,600,000 face amount were pledged as security for the Five-Year Six Per Cent Secured Gold Notes mentioned above, and the remaining $183,000 face amount are held in your Company's treasury. Particulars regarding the extension and payment of $5,000,000 Six Per Cent Coupon Gold Notes, the sale of $7,500,000 Five-Year Six Per Cent Secured Gold Notes, the creation of a new General Mortgage, and the issue under the latter of $9,783,000 6% General Mortgage Bonds of which $9,600,000 were used as security for the above mentioned $7,500,000 Five-Year Secured Notes, were given in the report for 1918.

Reference was made in the last annual report to the allocation of five hundred 55-ton coal cars to your Company by the Director-General of Railroads. This allocation was accepted by your Company and an arrangement has been made with the Director General since January 1, 1920, by which these cars, as well as twenty Mallet locomotives contracted for by your Company during Federal control, were financed by the Director General through fifteen-year equipment trusts amounting to a minimum of $2,812,500, with interest at six per cent.

Your Company and The Toledo & Ohio Central Railway Company endorsed, in 1901, their several guarantees upon certain 5% First Mortgage Bonds of the Kanawha & Hocking Coal & Coke Company, due 1951, of which bonds there were outstanding at the close of the year 1919 $2,842,000 face amount. In 1902 the same railway companies similarly guaranteed certain 5% First Mortgage Bonds of the Continental Coal Company, due 1952, of which at the close of the year 1919 there were outstanding $1,569,000 face amount, less a credit on foreclosure of $506.75 per $1,000 bond. The enforceability of these alleged guarantees has been in litigation for several years. Since the close of the year 1919 a settlement of this litigation has been arranged, pursuant to which, in consideration of your Company assuming one-half of the unpaid liability upon the bonds of the Continental Coal Company, it has been relieved of any liability in respect of the bonds of the Kanawha & Hocking Coal & Coke Company. All of the outstanding bonds of each issue, together with the guarantees thereon, have been duly discharged and cancelled pursuant to this settlement, and mutual releases between the Railway Companies, the Coal Companies, and the bondholders have been exchanged, thus finally disposing of this liability.

An analysis of the property accounts will be found on pages 18 and 19, by reference to which it will be seen that additions and betterments were made during the year to the net amount of $978,779.15 of which $964,967.22 was added to cost of road, and $13,811.93 was added to cost of equipment.

During the past eleven years your Company's net addition to property accounts has been as follows:

Equipment	$4,231,657.00
Additions and Betterments	6,524,912.48
	$10,756,569.48

GENERAL REMARKS

The equipment in service December 31, 1919, consisted of:

Locomotives owned	133	No change
Locomotives leased under equipment trusts	8	No change
Total	141	No change
Passenger train cars owned	72	No change
Freight train and miscellaneous cars owned	12,941	Decrease 140
Freight train cars leased under equipment trusts	1,999	No change
Freight train cars under special trust	47	No change
Total freight train and miscellaneous cars	14,987	Decrease 140

The changes during the year in accrued depreciation of equipment account were as follows:

Balance to credit of account December 31, 1918			$2,709,150.53
Amount credited during year ended December 31, 1919, by charges to U. S. Railroad Administration		$421,203.26	
Charges to account for:			
Accrued depreciation on equipment retired during year—142 freight and work cars	$20,799.62		
Accrued depreciation on cars changed in class during year	1,012.77		
		21,812.39	
			399,390.87
Balance to credit of account December 31, 1919			$3,108,541.40

Facilities, referred to in last year's report, for handling engines at terminals were greatly improved by the completion of the following: Walbridge, addition of 9 stalls to engine house, and 500-ton capacity concrete coaling station; Marion, new 5-stall engine house and 100-foot turntable; Parsons Yard, addition of 12 stalls to engine house, and 500-ton capacity concrete coaling station; Logan, increased length of 5 stalls of engine house, and 100-foot turntable replacing 60-foot turntable; Nelsonville, new 10-stall engine house, 100-foot turntable, machine shop, sand house and oil house. The 500-ton capacity concrete coaling station at Carey, and the two steel girder bridges replacing iron bridges on the River Division between Hawks and Minerton, mentioned in last year's report, have been completed.

Seven miles of additional second track were placed in service on the Toledo Division, 4.7 miles between Owens and Marion being new construction, and 2.3 miles between Crawford and Carey being conversion of track formerly used for siding purposes. A passing track one mile in length was constructed north of Marion. At South Shops, Columbus, steam heat was installed in the two machine shop buildings and in one 5-stall section of the engine house; at Oldtown, steel water tank of 100,000 gallons capacity was erected; iron bridge No. 518, south of Logan, was replaced by a greater capacity modern steel bridge. The use of this bridge, together with the two steel girder bridges mentioned above, now opens the entire River Division for use of the heaviest locomotives in service. In connection with the flood protection plans of the City of Columbus the city authorities are widening the channel of the Scioto River, making it necessary to lengthen two of your Company's bridges; this bridge work was commenced during the year and it is expected will be completed during the coming summer.

OPERATION BY UNITED STATES RAILROAD ADMINISTRATION

In the Annual Report for 1918 you were advised that the President of the United States, by proclamation dated December 26, 1917, took possession and assumed control of the railroad systems of the country, appointing a Director General of Railroads through whom the operation of such transportation systems was to be conducted. Under this proclamation and under the Act of Congress, approved March 21, 1918 (generally known as the "Federal Control Act"), the railroad of your Company was, during the entire year 1919, operated by the United States Government through Walker D. Hines, Director General of Railroads. The operating and traffic statistics contained in this report relate to the operation of your property by the Director General.

The result of operations for the year was exceedingly unsatisfactory, even as compared with the unfavorable showing of the previous year. The net railway operating income of the Director General was less by $104,239.93 than the amount of the interest, rentals, taxes and other fixed charges payable by your Company after applying thereto its other income, as shown by Combined Corporate and Federal General Income Account on page 15. This unfavorable showing was due not only to falling off in tonnage but to interruptions in traffic due to labor disturbances, both in transportation and industry, as well as to advances in wages paid to labor, and in the cost of materials and supplies, which resulted in increased operating expenses throughout the year. Increases in wages of employees made by the Director General of Railroads during the year increased the year's cost of operation approximately $338,000. These increases are in addition to the increases of $625,000 in 1917, and of $1,762,000 in 1918, mentioned in last year's report.

The revenue coal and coke tonnage was 9,618,539 tons, a decrease of 18.5%; other revenue freight tonnage was 2,966,053 tons, a decrease of 13.9%. Total revenue tonnage was 12,584,592 tons, a decrease of 17.5%. Freight revenue was $9,703,937.36, a decrease of 14.5%. Freight train mileage was 1,025,545 miles, a decrease of 31.4%. Revenue ton miles were 1,502,582,153, a decrease of 20.6%. Ton mile revenue was 6.46 mills, an increase of 7.8%. Revenue per freight train mile was $9.462, an increase of 24.6%. Revenue tonnage per train mile was 1,465 tons, an increase of 15.6%; including Company's freight, the tonnage per train mile was 1,496 tons, an increase of 14.9%. Tonnage per locomotive, including Company's freight, was 1,249 tons, an increase of 17.7%. Revenue tonnage per loaded car was 43.2 tons, a decrease of 1.1%. Tons of revenue freight carried one mile per mile of road were 4,290,640, a decrease of 20.7%.

There were 1,170,466 passengers carried, a decrease of 9.5%. The number of passengers carried one mile was 43,897,829, an increase of 3.2%. Passenger revenue was $1,228,282.01, an increase of 18.2%. Revenue per passenger per mile was 2.798 cents, an increase of 14.6%. The number of passengers carried one mile per mile of road was 125,351, an increase of 3%. Passenger train mileage was 581,644, an increase of 6.1%. Passenger revenue per train mile was $2.112, an increase of 4.9%; including mail and express it was $2.375, an increase of 8.5%. Passenger service train revenue per train mile was $2.455, an increase of 8.6%.

There were 1,155 tons of new 100-lb. rails, equal to 7.35 track miles, and 39 tons of new 90-lb. rails, equal to .28 track miles, used in the renewal of existing main tracks.

The average amount expended for repairs per locomotive was $6,398.34, a decrease of 15.6%; per passenger train car $1,197.80, a decrease of 4.3%; per freight train car $162.65, an increase of 18.8%.

COMPENSATION CONTRACT.

As stated in the Annual Report for 1918, the office of your Company, pursuant to authorization by your directors and stockholders, made application to the Director General of Railroads for a compensation contract for the use of your property during the period of Federal control, in the amount of $2,637,167.48, being the amount of the Standard Return of your Company as tentatively certified by the Interstate Commerce Commission. After prolonged negotiation the contract was finally executed by the Director General of Railroads under date of December 6, 1919. The corporate income figures in this report, are based upon the compensation payable to your Company under this contract. Federal control terminated March 1, 1920, but statement of the accounts of your Company with the Director General has not yet been completed, and, it will doubtless be some months before a final settlement can be made.

TRANSPORTATION ACT, 1920.

The above Act was approved by the President and became effective on February 28, 1920. It represents an earnest and public-spirited effort by Congress to deal constructively with the railroad problem. It is impracticable within the scope of this report to analyze the Act or even to refer to most of its provisions. Of particular importance to your Company are the provisions:

(*a*) For the guaranty to your Company, if accepted by it before March 15, 1920, for the six months ending September 1, 1920, of a net railway operating income, computed in accordance with the Federal Control Act, equal to one-half of the annual return provided by your Compensation Contract.

(*b*) For funding the indebtedness of your Company to the United States for additions and betterments made during Federal control for not more than ten years, and other indebtedness for not more than two years, interest in each case to be computed at six per cent. per annum, the amount to be funded being the balance after off-setting any sums due your Company under its Compensation Contract in excess of the amount required to provide for fixed charges, taxes payable by the Company, corporate expenses and dividends accruing during Federal control and for a reasonable working capital.

(*c*) For loans to carriers during the two years succeeding Federal control, particularly for additional facilities, and establishing a revolving fund of $300,000,000 for this and certain other purposes.

(*d*) Requiring the Interstate Commerce Commission to so adjust rates as to allow to the carriers as a whole or in regional groups fixed by the Commission an annual net operating income for the ensuing two years equal as nearly as practicable to five and one-half per cent. per annum upon the value of their operating property as fixed by the Commission with an additional allowance in the discretion of the Commission of one-half of one per cent. per annum to provide in whole or in part for additions and betterments.

Your directors voted to accept the guaranty provided by the Act for the six months ending September 1, 1920. This acceptance carries with it the obligation to pay to the United States any operating income in excess of the amount guaranteed.

While the rule of rate making above mentioned does not amount to a guaranty to any particular carrier of a return of five and one-half per cent. upon the value of its operating property, as the earnings of any particular carrier in a group may be more or less than the five and one-half per cent. allowed the region, your directors feel reasonably confident that a rate adjustment on the foregoing basis should afford your Company a return of not less than the average return allowed by the Act to the carriers in its regional group. One-half of any earnings above six per cent. upon the value of your property must be paid into a general contingent fund to be administered by the Interstate Commerce Commission and the remainder may be retained by your Company in a reserve fund to meet interest and dividends in years when the return upon your property does not equal six per cent. After your reserve fund reaches five per cent. upon the value of your property, one-half of the excess over six per cent. per annum may be used by your Company for any of its lawful purposes.

Reference to the statement of return on property, given above in this report, indicates that an adjustment of rates on the foregoing basis would afford your Company a somewhat smaller average return upon its property investment than it enjoyed during the two years immediately preceding Federal control, but slightly better than its average return for the past five years. This is on the assumption that the Commission accepts your property investment accounts as fixing the property value upon which a return is to be allowed. The return allowed by the Act, however, on any additions to your property hereafter made is not sufficient under present conditions to provide for the charges which your Company must pay upon any new capital which it must raise to make such additions. Your directors, therefore, feel that a conservative policy in the matter of increasing your investment should be pursued until financial conditions materially improve.

Labor conditions, not only those affecting railroad employees but those existing generally throughout the country, are unsettled, and your Company must doubtless expect further increases in its cost of operation due both to the necessity of meeting further demands for increased wages and to the difficulty of obtaining a sufficient number of competent and experienced employees. The Transportation Act of 1920 contains provisions for dealing with labor controversies affecting railroads, the workability of which has yet to be determined. It is the clear intention of the Act that increases in expenses due to increased wages and improved working conditions, adopted with the sanction of the labor adjustment tribunals established by the Act, shall be adequately provided for in the rate adjustments to be made from time to time by the Interstate Commerce Commission. The responsibilities of the Commission to the railroads, to their employees and to the public, under the Act, are very great but your directors have confidence that they are appreciated by the Commission and that it will measure up to them.

Mr. Frank Trumbull, for many years Chairman of your Board of Directors, and from June 20, 1918, President of your Company, resigned effective January 1, 1920. His resignation was accepted with regret and resolutions were adopted by your directors expressing their appreciation of his long and valuable services to your Company.

Effective March 1, 1920, Mr. George W. Stevens was elected President and a director of your Company, to succeed Mr. Trumbull. Effective the same date Mr. Frank M. Whitaker was elected a director of your Company to succeed Mr. Randolph S. Warner, resigned.

Appreciative acknowledgment is hereby made to officers and employees for their efficient services during the year.

By order of the Board of Directors.

GEO. W. STEVENS,
President.

H. E. HUNTINGTON,
Chairman.

GENERAL BALANCE SHEET, DECEMBER 31, 1919. (Corporate)

ASSETS.

PROPERTY INVESTMENT.		
Cost of Road	$32,637,580.01	
Cost of Equipment	15,784,171.21	
		$48,421,751.22
SECURITIES OF PROPRIETARY, AFFILIATED AND CONTROLLED COMPANIES—PLEDGED.		
Stocks	$108,288.66	
Bonds	450,000.00	
		558,288.66
SECURITIES OF PROPRIETARY, AFFILIATED AND CONTROLLED COMPANIES—UNPLEDGED.		
Miscellaneous		46,899.60
OTHER INVESTMENTS.		
Miscellaneous Investments—Securities—Pledged		590,000.00
SECURITIES—ISSUED—PLEDGED.		
General Mortgage 6% Bonds (see Contra)		9,600,000.00
		$59,216,939.48
WORKING ASSETS.		
Cash	$2,697,634 07	
Traffic Balances	390 37	
Miscellaneous Accounts Receivable	34,128.16	
United States Government:		
Unpaid Standard Return Accrued	2,945,228.96	
Interest Accrued on above	177,367.49	
Other Working Assets	13,527.08	
		$5,868,276.13
SECURITIES IN TREASURY—UNPLEDGED.		
Stocks	$501.00	
Bonds	183,800.00	
		184,301.00
(Includes $183,000.00 General Mortgage 6% Bonds, see Contra.)		
DEFERRED ASSETS.		
Advances to Proprietary, Affiliated and Controlled Companies	$56,278.30	
Advances, Working Funds	2,442.10	
Insurance paid in advance	517.99	
Cash in Sinking Funds	650.74	
Special Deposit with Trustee—Mortgage Fund	436,130.02	
Cash and Securities in Insurance Reserve Fund	49,787.92	
United States Government	5,060,793.44	
Other Deferred Debit Items	73,896.17	
		5,680,496.68
		$11,733,073.81
Total		$70,950,013.29

LIABILITIES.

CAPITAL STOCK		$11,000,000.00
FUNDED DEBT.		
First Consolidated Mortgage 4½% Bonds, 1999	$16,022,000.00	
First Mortgage C. & H. V. R. R. 4% Bonds. 1948	1,401,000.00	
First Mortgage Cols. & Tol. R. R. 4% Bonds, 1955	2,441,000.00	
Five Year 6% Secured Gold Notes, 1924	7,500,000.00	
		$27,364,000.00
Equipment Trust Obligations		800,000.00
		$28,164,000.00
		$39,164,000.00
General Mortgage 6% Bonds, not in hands of public (see Contra) 1949		9,783,000.00
WORKING LIAPILITIES.		
Loans and Bills Payable	$1,450,000.00	
Traffic Balances	1,840.58	
Audited Vouchers and Wages Unpaid	7,260.14	
Miscellaneous Accounts Payable	8,628.82	
Matured Interest, Dividends and Rents Unpaid	382,123.50	
Other Working Liabilities	11,342.00	
		$1,861,195.04
DEFERRED LIABILITIES.		
Unmatured Interest, Dividends and Rents Payable	$285,256.62	
Taxes Accrued	110,866.71	
Accrued Depreciation—Equipment	3,108,541.40	
United States Government	5,992,185.33	
Other Deferred Credit Items	185,132.86	
		9,681,982.92
		$11,543,177.96
APPROPRIATED SURPLUS.		
Additions to Property through Income since June 30, 1907	$181,409.11	
Funded Debt Retired through Income and Surplus	131,331.90	
Reserve Invested in Insurance Fund	49,787.92	
Other Reserves	37,047.54	
Appropriated surplus against contingent liability for freight claims	120,000.00	
		$519,576.47
PROFIT AND LOSS—BALANCE		9,940,258.86
		$10,459,835.33
Total		$70,950,013.29

As to guarantor's liability on bonds of the Kanawha & Hocking Coal & Coke Company and the Continental Coal Company (not included in above General Balance Sheet), see above.

[ADV.]

Railway Officers

Executive

Norman S. Meldrum, chairman of the Texas & Pacific and a member of the firm of Blair & Co., New York, has been elected president of the Carolina, Clinchfield & Ohio, effective June 24, succeeding **Mark W. Potter,** resigned.

William H. Tobin, whose appointment as assistant to the president of the Trans-Mississippi Terminal, with headquarters at Dallas, Tex., was announced in the *Railway Age* of June 4th (page 1591), entered railway service as a brakeman on the Missouri, Kansas & Texas in 1884. During the next twelve years he served this road successively as brakeman, switchman, freight conductor and passenger conductor. In 1896 he became a conductor on the Kansas City, Pacific & Gulf. Later he was appointed trainmaster and then promoted to inspector of transportation. He was appointed assistant to the general manager of the Texas & Pacific in May, 1917, and in January, 1919, was promoted to assistant general manager. This was the position he held at the time of his recent appointment, which he continues to hold in addition to his duties as assistant to the president of the Trans-Mississippi Terminal.

W. H. Tobin

Operating

C. G. Trotter has been appointed assistant trainmaster of the San Joaquin division of the Southern Pacific, with headquarters at Bakersfield, Cal., effective June 1.

G. M. Archibald, trainmaster on the Los Angeles division of the Los Angeles & Salt Lake, has been promoted to assistant to the general manager in charge of all wage schedule matters, effective July 1.

F. S. Rosseter has been appointed acting superintendent of the Sudbury division of the Canadian Pacific, with headquarters at Sudbury, effective July 1, succeeding **T. A. Wilson,** who has been granted a leave of absence for one month.

L. P. Hopkins has been appointed acting district supervisor of transportation of the Southern district of the Southern Pacific, with headquarters at Los Angeles, effective June 20, succeeding **H. R. Hughes,** assigned temporarily to other duties.

Victor B. Fisher, superintendent of the Shamokin division of the Philadelphia & Reading, with headquarters at Tamaqua, Pa., has been appointed general superintendent of the same road, with headquarters at Reading, Pa., succeeding **William H. Keffer,** deceased.

E. F. Rummel, trainmaster of the River division of the Chicago, Milwaukee & St. Paul, with headquarters at Minneapolis, Minn., has been promoted to assistant superintendent of the Chicago Terminals division, with headquarters at Chicago, effective July 1, succeeding **J. E. Hills,** who has been transferred to succeed Mr. Rummel.

N. H. Fuller, trainmaster on the Chicago, Milwaukee & St. Paul, with headquarters at Mobridge, S. D., has been promoted to superintendent of the Trans-Missouri division, with the same headquarters, effective July 1, succeeding **C. L. Whiting,** whose promotion to superintendent of terminals, with headquarters at Milwaukee, Wis., was announced in the *Railway Age* of July 2 (page 45).

Traffic

O. L. McKay has been appointed executive general agent on the Mobile & Ohio and the Southern Railway in Mississippi, with headquarters at Meridian, Miss., effective July 1.

L. P. Hopkins has been appointed acting district supervisor of transportation of the Southern district of the Southern Pacific, with headquarters at Los Angeles, Cal., replacing **H. R. Hughes,** who has been temporarily assigned to other duties.

Roy Pope, who has been appointed assistant general freight agent of the Atlanta, Birmingham & Atlantic, with headquarters at Atlanta, Ga., as noted in the *Railway Age* of June 11 (page 1698), served as chief clerk prior to this promotion. Mr. Pope was born at Hooker, Ga., on March 18, 1888, and was educated in the public schools of that city, finishing in the high school at Tullahoma, Tenn. He began railroad work in 1906 as stenographer in the mechanical department of the Queen & Crescent. He was promoted to secretary to the general freight agent, with headquarters at Cincinnati, Ohio, in 1907 and in 1909 he became rate clerk in the same office. In May, 1916, he entered the employ of the Atlanta, Birmingham & Atlantic as executive rate clerk in the general freight office. Appointed chief rate clerk in September, 1917, he was promoted to chief clerk in July, 1918.

Roy Pope

Mechanical

George F. Hess, whose appointment as superintendent of motive power of the Wabash, with headquarters at St. Louis, Mo., was announced in the *Railway Age* of June 11 (page 1699), was born in Fort Wayne, Ind. He entered railway service as a messenger boy in the mechanical department of the Pennsylvania in 1886. After a short service as machinist apprentice in the Pennsylvania shops at Fort Wayne, he entered the employ of the Cleveland & Pittsburgh at Wellsville, Ohio, as a machinist. He was later employed by the Cleveland, Canton & Southern, at Canton, Ohio, by the Atchison, Topeka & Santa Fe, at Raton, N. M., and by the Wabash, at Ashley, Ind. In 1897, he was promoted to roundhouse foreman at Montpelier, Ohio, and shortly after was transferred to Delray, Mich. He entered the service of the Grand Trunk as general foreman at Detroit, Mich., in 1899, and was later transferred to Battle Creek, Mich. In March, 1901, he was appointed engine house foreman on the Chicago, Rock Island & Pacific at Pratt, Kan. He was later transferred to Caldwell, Kan., where he remained until promoted to general foreman at the 47th St. (Chicago) shops. He entered the service of the Baltimore & Ohio in March, 1903, as a master mechanic, with headquarters at Lorain, Ohio, and served in the mechanical department of this road during the next eight years. In August, 1911, he was appointed superintendent of machinery on the Kansas City Southern, with headquarters at Pittsburgh, Kan., which position he occupied at the time of his recent appointment.

Engineering, Maintenance of Way and Signaling

C. N. Campbell has been appointed assistant valuation engineer of the Southern Pacific, Texas and Louisiana Lines, with headquarters at Houston, Tex.

T. S. Bond, assistant engineer of the International & Great Northern, with headquarters at Palestine, Tex., has been appointed assistant chief engineer, with the same headquarters, effective June 4.

E. E. Mayo has been appointed assistant division engineer of the Salt Lake division of the Southern Pacific, with headquarters at Ogden, Utah, effective July 1, succeeding **W. F. Turner,** promoted.

Frank D. Nash, whose appointment as assistant valuation engineer of the St. Louis-San Francisco, with headquarters at St. Louis, Mo., was announced in the *Railway Age* of June 11 (page 1699), was graduated from the Louisiana State University in the class of 1896. He entered railway service in the same year as an instrument man on the St. Louis, Peoria & Northern. In June, 1899, he was appointed assistant resident engineer on the Minnesota & St. Louis and in February, 1900, was appointed resident engineer on the Burlington, Cedar Rapids & Northern, now part of the Rock Island. From December, 1900, to September, 1905, he served on the Chicago, Burlington & Quincy as assistant engineer on location, construction and maintenance work. Upon the latter date he became locating engineer for the Paul's Valley and after one year of service with this road was appointed engineer for the Philippine railways, which position he held until February, 1907. During the following year he served as locating engineer for the Pan American in Uruguay, South America. In July, 1914, he became draftsman on the Chicago & North Western and from April, 1915, to June, 1916, served in this capacity for the Chicago, Rock Island & Pacific. In August, 1916, he was promoted to pilot engineer on this road and in October of the same year was appointed pilot engineer on the St. Louis-San Francisco. He left the last named position in July, 1917, to enlist in the army and from July, 1917, to January, 1919, served as an officer in the American Expeditionary Forces in France. Here he saw service in the construction of the first light railway on the Somme battle front and later on standard-gage railway work for the Railway Transportation Corps. In February, 1919, he was appointed chief engineer for the receiver of the Missouri & North Arkansas, the position he held shortly before his appointment, as noted above.

F. D. Nash

Samuel Rollo Young, who has been appointed assistant chief engineer of the Atlanta & West Point, with headquarters at Atlanta, Ga., as noted in the *Railway Age* of March 12 (page 801), was born at Coatesville, Pa., on March 3, 1887. He graduated from the West Chester State Normal School in 1904, and from Lehigh University in 1909. In May, 1910, he entered railway service on the Sunbury division of the Pennsylvania, having previously served as axeman, rodman and transitman with the Consolidation Coal Company, of Van Lear, Ky. He was engaged in farming from 1912 to 1914. From 1915 to May, 1916, he was engineer of construction with the Midvale Steel & Ordnance Company at Coatesville, Pa. From May, 1916, to November, 1918, he served alternately as assistant engineer and division engineer on the Atlanta & West Point, the Western Railway of Alabama, and the Georgia Railroads. In November, 1918, he was appointed district engineer of these roads. From December, 1919, to March, 1920, when he was promoted to his present position, he was district engineer in charge of engineering and roadway departments of the Georgia Railroad, at Augusta, Ga.

Chester T. Dike, whose promotion to engineer of maintenance of way of the Chicago & North Western, with headquarters at Chicago, was announced in the *Railway Age* of June 18 (page 1958), was born August 13, 1871, at Woodstock, Ill. Mr. Dike was educated at Cornell College, Iowa, where he graduated in 1893. He entered railway service as a rodman in the engineering department of the Northern Pacific in March, 1890, and was employed there during vacations while attending college and for one year after graduation. In 1894 he was appointed city engineer of Mason City, Ia., and two years later became chief engineer of the Mason City & Clear Lake. He was appointed chief engineer of the Iowa, Minnesota & North Western in 1898, and in 1899 became resident engineer on location and construction work for the Chicago & North Western. In 1907 he was appointed superintendent of the Pierre, Rapid City & North Western, a subsidiary of the North Western, and one year later he was appointed engineer and superintendent of construction on the North Western. In 1910 he was promoted to general superintendent of the Minnesota & Dakota divisions and in 1918 was appointed assistant general superintendent of the lines in Iowa. He was promoted to assistant general manager of lines west of the Missouri river in 1919, the position he held at the time of his recent appointment.

C. T. Dike

Obituary

Harry C. Burnett, assistant general freight agent of the Lehigh Valley, with headquarters at New York, died on July 3.

A. M. Williams, supervisor on the Pennsylvania, with headquarters at Columbia, Pa., died suddenly of heart disease on June 30.

Axel Carl Ekstrom, consulting electrical engineer of the Delaware & Hudson, died Thursday at his home in Ballston Spa, N. Y.

John J. Lane, division freight agent of the Delaware, Lackawanna & Western, with headquarters at Newark, N. J., died in Summit, N. J., on July 6.

William H. Keffer, general superintendent of the Philadelphia & Reading, with headquarters at Reading, Pa., died on July 1 at his home in Reading at the age of fifty-seven. Mr. Keffer was born in Frackville, Pa., and began railroad work on April 1, 1880, as telegraph operator for the Philadelphia & Reading. Afterwards he held other clerical positions and in 1889 was appointed train despatcher at Mahanoy Plane, Pa. In 1892 he was appointed traveling despatcher on the Shamokin division, and in 1897 trainmaster of that division at Tamaqua. He became assistant to the general superintendent at Reading on October 19, 1904. In February, 1905, he was promoted to assistant superintendent in charge of transportation of the Reading division, with headquarters at Reading. The following October he was appointed superintendent, and in 1916 was advanced to the position he held at the time of his death.